Railway Age

Vol. 81, No. 22 November 27, 1926

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Importance of Cleanliness

ONE of the basic principles of the Ford organization is to "insist upon absolute cleanliness everywhere in order that a man may learn to respect his tools, his surroundings and himself." How does this apply to the railroads and what about the effect of it upon the traveling public? Incidentally, also, it is not an inspiring sight to see untidy back yards and rubbish heaps as one looks from the trains as they enter or leave the cities or towns. This is a reflection upon these particular communities. Chambers of commerce and civic clubs, which are enthusiastic in boosting the merits of their communities, may receive a real shock if they ride in and out of their towns or cities on railroad trains and look for these things. But ought not the railroads to set a good example by keeping their premises clean and orderly? True, there has been a marked improvement in this respect in recent years, but there still remains much to be done, even on some of the roads which lead in this respect. A crack limited train, for instance, has occasion to stop daily for coal at a small station—it must be difficult to find tasks to keep the force occupied between trains. The passenger, looking from the window, sees on company property scattered broken timbers and sticks, and papers blown against the fence. It would take but a few minutes to gather and burn them. Some old cans add to the untidiness and just beyond the buildings is a disordered pile of old lumber. True, the premises of most of the stations on this particular road are kept clean and orderly, but there are enough exceptions in a day's journey to make a distinct impression upon the mind of the traveler; one wonders also at the effect upon the minds and habits of the employees who daily live and work in disorderly surroundings, apparently with unseeing eyes. Possibly it is imagination, but their overalls seemed to be more soiled and untidy than those of employees working in a more attractive and orderly environment.

The Task of the Dining Car Department

THE task of a railroad dining car department is not essentially dissimilar to that of the locomotive builder. The locomotive builder must construct a machine to embody, insofar as possible, the features of a modern, efficient stationary power plant and this within the restrictions as to size and shape imposed by railroad clearances and by the fact that the machine must move at high rates of speed. In the same way the dining car department must, within the severe limitations imposed by restricted space, rapid motion, and distance from the source of supplies, give a service comparable to that obtainable in first-class metropolitan restaurants. And in the great improvement which has taken place in practically all railroad departments since the end of federal control the dining car service has not lagged. In some cases the improvement has been actually phenomenal. Complacency, however, is not the attitude which makes for progress. Rather the healthy point of view must be one of question and criticism. Just how much money is a railroad justified in losing on its dining car service in order to attract remunerative traffic? Wherein is it possible to improve the service to passengers without at the same time increasing the expense? Should table d'hôte service be further extended? Should the European system of assigning passengers definite times in the dining cars be in wider use? Few first-class restaurants forbid smoking. Does the greater speed of service resulting from this ban on dining cars pay for the ill-will which it often creates on the part of some passengers? Is there a field on this continent for the train, called in England a "Pullman," in which all cars are dining cars? These and other similar questions merit study, and attention to them may bring as great improvement in the next few years as the past few years have seen.

Competitive Bidding Still Experimental

THE discussion relative to competitive bidding for railway equipment trust certificates seems temporarily to have quieted. It filled the financial columns for a while in May of last year when Commissioner Eastman gave his dissenting opinion in the New York Central case. It came to the front again in June of this year when the Western Maryland was praised for having obtained competitive bids for its $2,278,000, series D, issue. It then was a leading item of discussion in financial centers again when the Interstate Commerce Commission refused to permit the sale of the $4,665,000 Illinois Central series N certificates and also the $410,000 Chicago, St. Paul, Minneapolis & Omaha series C certificates to Kuhn, Loeb & Co. without competitive bidding. The Omaha certificates were withdrawn from the market. The Illinois Central issue was put up for bids; two such were received and the certificates were sold to Halsey, Stuart & Co. of Chicago, who have offered them to the public. The Illinois Central in this instance sold its certificates at a higher price than the original participants had offered and was fortunate in that the issue was taken by a strong house which presumably felt itself able to dispose of the securities promptly even if it had to do so at a rather small margin of profit. The point is that at the present time there is little agitation about the subject and presumably will not be until there is another important issue. This may or may not be significant but very likely it does signify either that the bankers as a whole cannot agree whether they prefer competitive bidding or not or else that the power and prestige of the commission are so well recognized that it may not be desirable to dispute them. The issue, however, is not a closed one. The truth of the matter very likely is that the commission is experimenting and that the bankers are waiting to see how

the experiment is going to turn out. No doubt both are particularly desirous of seeing whether the competitive bidding idea is going to prove feasible in times when the market is less ready to absorb securities than it is at this particular time. The experiment, of course, will test two things, (1) whether it is going to be possible to get a wider market for these issues and (2) whether the railroads will in the long run be able to get their money more cheaply. The fact that there were only two bidders for the Illinois Central issue leaves open the question as to whether the market will be widened and there still remains the question as to whether the savings are worth the difference because, when all is said and done, the actual money saved was not very large.

Use for a Code

AT the annual meeting of the National Industrial Traffic League consideration was given to the possibility of using a telegraphic code in communication between shippers and railroads. It is clear that time and money might be saved by giving such communications brevity and uniformity. Lost shipments might be traced more speedily, reconsignment effected more readily, and other stages in the transportation of goods might be kept watch of to better advantage through use of a standard code. Its adoption would be another step along the road of co-operation between shipper and carrier, and, while there has already been a large amount of expression in favor of such co-operation, further approval of it in so tangible a form as a uniform code for telegraphic communication does not seem out of order.

Colors and Cleanliness

THOSE railroads which have made special efforts to improve the appearance of their locomotives by adopting fancy colors or using plenty of polished brass have good reason to feel satisfied with the results of their experiments. Compliments for their adoption of the idea have flowed in from all quarters. The friendly comment has remarked that the policy of brightening up the appearance of the locomotives has assisted in restoring some of the old popularity of railroading, that it has helped cultivate both public favor and employee morale, and a lot of other desirable and nice things. There are some roads, however, that have not departed from the familiar black and that have not made large requisitions for brass polish but that have contented themselves with insisting simply that the locomotives be kept clean. Those that have applied such a policy to their passenger locomotives have done something, but those who have applied it to all their locomotives have done much more. It might be well to remember that the passenger in the train does not always see the bright passenger locomotives on the head end, whereas he may often see from the window of his coach or Pullman many of the freight and switching locomotives on adjoining tracks. While we are complimenting the roads that are trying the novelty stunts with bright colors and brass work we should not neglect to compliment those roads also whose locomotives—passenger, freight or switching—all look uniformly smart and clean even if colors other than black may be lacking. And what is most important of all, is it not worth remarking that there has been a remarkable improvement in this respect on almost every railroad within the past four or five years?

Are Regional Commissions Needed?

THROUGHOUT the last fifteen years the work required of the Interstate Commerce Commission has been increasing. The increase in its burdens has been especially great since the return of the railways to private operation. Its work has been speeded up by an increase in the number of its members and its organization into divisions. But the amount it has been asked to do has increased faster than its ability to get it done.

Complaints about the resulting conditions came from all interested sources—railways, shippers and public men. Congressman Hoch of Kansas recently has written a letter to the National Industrial Traffic League contending that the commission should be relieved by empowering the state commissions to deal more with questions of local concern. The league adopted a resolution directing its legislative committee to investigate the situation, and particularly whether the present centralization of the functions now delegated to the commission is desirable.

There is pending in Congress a bill to provide for regional appointments of members of the commission, one of the ideas of its proponents apparently being that this would cause more consideration to be given to conditions in different territories.

There is published elsewhere in this issue of the *Railway Age*, under the heading, "Interstate Commerce Commission Needs Relief," an article by Doctor Walter M. W. Splawn, president of the University of Texas. Doctor Splawn is an eminent economist who has, in his university work, made a special study of railway problems. He has a practical knowledge of regulation, for he was formerly a member of the Texas Railroad Commission. He gives a graphic and somewhat startling description of the conditions with which the commission is confronted and the methods it is using in its efforts to cope with the problems they present. He advocates the creation of regional commissions to relieve the Interstate Commerce Commission and make possible more expeditious, intelligent and satisfactory settlement of questions arising under federal regulation. Because of his expert knowledge, his former service on an important state railroad commission and his judicial review of the situation, the views expressed by Doctor Splawn should attract widespread attention and be given great weight.

It is quite obvious that part of the cases presented to the commissions are of local concern, and others of national concern. While the latter attract much more attention, the former probably are more numerous. It has repeatedly been suggested that under some plan more of these local cases should be relegated to state commissions for disposal. The strongest objection to this is that there are few local cases the subject matter of which is confined within the boundaries of one state. Most of the problems of regulation presented in any territory concern the railways and people of from two to several states. With respect to transportation, industry and commerce, territorial lines are much more clearly defined than state lines. Furthermore, past experience indicates that the commissions of adjoining states are much less likely, if their powers are increased, to co-operate in regulation affecting their territory than to compete with each other in reducing rates and hampering railway operating efficiency and economy.

The problem of satisfactorily dividing the work of federal regulation between the Interstate Commerce Commission and six or more regional federal commis-

sions would be a difficult one. It could hardly be solved by statutory provisions. Probably if regional commissions were to be established Congress should largely delegate to the Interstate Commerce Commission the determination of the subject matter and measure of their jurisdiction, their procedure and so on. As Doctor Splawn's article indicates, the Interstate Commerce Commission is already in a very important sense ceasing to be a body of original jurisdiction. It has had to organize bureaus to deal in the first instance with several classes of important matters.' It sends lawyer-examiners all over the country to take testimony in rate cases and make reports and recommendations to it. These things have become necessary to enable the commission to avoid getting far behind with its work. The trouble is that they are makeshifts which do not lead to prompt and satisfactory disposition of cases.

There are persons who believe the scope and detail of federal regulation of railways have been increased beyond all reason. They may look askance at a proposition for the creation of more federal regulating commissions. If, however, federal regulation is to continue to be so wide in scope and so detailed in application, no effort should be spared to make it as expeditious and intelligent as possible. It seems highly probable that hearings conducted and decisions rendered by permanent regional commissions would result in earlier and more satisfactory settlements of many cases. It seems clear that creation of regional commissions would be better than adoption of a plan of having interstate commerce commissioners appointed to represent particular territories.

"Old-Fashioned" Increase of Traffic

APPARENTLY it is not generally realized, but it is a fact, that the railways in 1926 are having the first "old-fashioned" increase in freight business that they have had since 1920. By this is meant that it is the first increase within six years that is comparable with the annual increases that occurred before the war.

In each year since 1922 carloadings have exceeded those of 1920, but until this year light loading traffic has increased relatively more than heavy loading traffic, and the increase in tons carried one mile has been relatively small. It was not unusual in years of prosperity before the war for an increase of 15 to 20 billion net ton-miles—which include both revenue and non-revenue traffic—to occur in a year, and there were even much larger increases. On the other hand, between 1920 and 1925, a period of five years, the entire increase in net ton-miles was less than six billion. In the first nine months of 1926 net ton-miles were almost 357 billion, or more than 23 billion greater than in the first nine months of 1925 and 13 billion greater than in 1923, when the highest record for the first nine months of any year was made. The increase in the first nine months of 1926 over the corresponding part of 1925 was seven per cent, and, if it should be correspondingly large throughout the year, total net ton-miles in 1926 would be 485 billion, or about 31 billion greater than in 1925, 29 billion greater than in 1923, and 38 billion greater than in 1920.

The foregoing statistics are for Class I roads. The average number of cars on the lines of these roads was, in 1920, about 2,464,000; in 1923, 2,461,000; in 1925, 2,527,000, and in 1926 has been about the same. The explanation of the success of the railways in handling this year's record-breaking business with such a small increase in the number of cars on line is, of course, to be found in the increase that has occurred in the speed with which cars are handled. Average miles per car per day in the first nine months of 1920 were 24.5; 1923, 27.6; 1925, 27.6; and 1926, about 30. The increase in average miles per car per day this year over 1920 has been equivalent to an increase of about 541 thousand in the number of cars, and the increase over 1923 has been equivalent to an increase of about 200 thousand in the number of cars. Average miles per car per day in September were 32.7, the highest record ever made. The performance of the railways in handling as they have the largely increased traffic of 1926 is even more remarkable than their performance within other recent years.

Present business conditions seem to warrant the expectation that during the winter and early spring months freight business will continue to set new high records for those months.

What Crossings Should Be Eliminated?

AGITATION on the part of the public for grade separation at highway crossings is commonly founded on two grievances, hazards to highway traffic as demonstrated by serious accidents, an interference with the use of the highway such as occurs where heavy or slow speed train movements produce traffic jams on a street or road carrying a dense vehicle movement. Crossings which are the cause of highway traffic delays are not necessarily the most dangerous. In fact, many crossings which have become notorious because of a long list of fatalities are on highways that carry only moderate traffic and are rarely, if ever, blocked at the crossing.

Justification of the railroads' share in the cost of grade separation on the basis of tangible or intangible economies accruing to the railroads has rarely been demonstrated on even the most liberal evaluation of the operating advantages, and efforts to this end are especially futile in studies of grade separation at a crossing that is classed as a hazard danger rather than an obstacle to highway traffic movements. It is at crossings of the latter class, especially in cities, where traffic blockades are a real grievance and police powers are exercised for the purpose of exacting reductions in train speeds, cutting standing trains in two to clear crossings, etc., that elimination offers the greatest opportunity for tangible gains to both the railroad and the users of the highway.

Investigations of grade crossing accidents show that the primary contributing causes are carelessness, inexperience and incapacity of automobile drivers, ineffective warning signals, obstructed view and unsatisfactory grades or alinement of the approaches. Where contributing causes of a physical nature are non-existent or subject to correction, danger of accident must arise almost entirely from what are now commonly known as "man failures." This being the case, how much consideration should be given to the elimination of so-called dangerous crossings? Should not primary attention be given to those crossings which seriously limit the capacity of the highway, if not also the railroad? Current practice in the protection of grade crossings is far from perfect, but the answer for the light-traffic, "dangerous" crossing would seem to lie in improved protection rather than in undertaking elimination.

Saving a Day for Business

THE western railways made another contribution of first magnitude to the business welfare of the country on November 14, when they shortened the schedules of certain of their passenger trains between Chicago and Los Angeles, Cal., and San Francisco by five hours. Trains leaving Chicago in the evening now arrive at their west coast destinations in the morning of the third day instead of in the afternoon as they used to. The effect of this is a saving of one business day for travelers from the West and Middle West to the Pacific coast. To the business man whose time is worth money the saving of a day will be of much value.

This service that the railways are rendering the business of the country is only one of many such services that they have rendered in the past. To appreciate fully what the railways have done in narrowing the North American continent, compare the time now required to ride from coast to coast with that of the days when going from New York to San Francisco meant a long voyage around the Horn or a stage coach journey of many days overland. Instead of weeks, the width of the country is now measured in a few days. The tremendous industrial growth of the United States has hinged upon the faster and faster transportation that the railways have provided. The eastern railways led the way when they saved a day for business men with such trains as the Twentieth Century Limited and the Broadway Limited, which leave New York in the afternoon and arrive at Chicago early the following morning. Now the western railways have followed suit with their 63-hour trains from Chicago to the Pacific coast. To the fast freight service that they are providing, they have added faster passenger service. That they are thus meeting the demands of business interests for greater and greater savings of time is conclusive evidence that the railways are ready at all times to perform such service, regardless of its difficulties, that the prosperity of the country requires.

To Prevent Slow Speed Collisions at Railroad Crossings

SOME rather serious recent collisions of trains operating at speeds under twenty miles per hour over interlocked railroad grade crossings suggest that the more extensive use of smash-boards may be advisable at such points. Two employees were killed in a collision at a crossing of the Pennsylvania and the Chicago, Rock Island & Pacific in Chicago on September 29. The Bureau of Safety, in its report on this accident, stated that the Pennsylvania train went over the derail without the locomotive leaving the rails and then continued on to the crossing where it struck the Rock Island locomotive. The failure of the derail to perform its intended function in this instance strengthens the sentiment against the use of derails that has been increasing for ten years or more, and which took definite form in the action of the Signal Section, A. R. A. in 1924, recommending that derails should not be used in main tracks.

Another angle of this question is brought out by the fact that for years it has been recognized that a derail should not be used on high fills or on a bridge because a derailment at such a point would be likely to result in a more serious accident than that of two trains meeting on the crossing. In just such a layout at Bethlehem, Pa., in which the derail was removed in 1922, an accident occurred on September 27, when a Central of New Jersey passenger train struck a Lehigh Valley passenger train on a crossing, resulting in the death of eight persons and the injury of 40 others. In both of these accidents the engineman at fault passed a home interlocking signal indicating stop and continued to the railroad crossing at a relatively low speed of between 12 and 15 miles an hour.

Still another angle of the problem is brought out by the fact that the Bureau of Safety in its reports on these accidents omitted the usual cautionary ending to the effect that "if train control had been in service this accident would have been prevented." This was done probably on account of the fact that the circumstances place these cases beyond the domain of automatic train control for practical operation.

A summary of this problem of protecting train movements over railroad crossings brings out the point that whether or not derails are used accidents will occur and that under certain circumstances little can be expected from train control. The only alternative at this time seems to be that of utilizing the well known smash-board which has been used for years, particularly on draw bridges where reduced speeds prevail and where it is impracticable to use derails. Where similar conditions exist elsewhere the use of smash-boards may also be advisable.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The Law Department, by Alexander S. Lyman. Organization and work of law departments, particularly that of the New York Central Lines. N. Y. C. pamphlet No. 15. 23 p. Pub. by New York Central, New York. Apply.

The Missouri and North Arkansas Railroad Strike, by Prof. Orville T. Gooden. A Thesis submitted to the Faculty of Political Science, Columbia University. 274 p. Pub. at Columbia University, New York.

The Productivity Ratios of Public Utility Companies. University of Illinois. Bureau of Business Research Bulletin No. 10. 32 p. Pub. by University of Illinois, Urbana, Ill. Apply.

R. A. O. A. Commodity Classification. 1927 Edition. Indicates what articles are assignable to each of the seventy classes specified in section 1, of the order of the Interstate Commerce Commission regarding freight traffic statistics to be reported quarterly and annually. The alphabetical list begins with "Abrasive Cloth or Paper" and ends with "Zylonite," and will be of special interest to anyone wishing to know what and how many kinds of things our railroads transport. 180 p. Pub. by Railway Accounting Officers' Association, Washington, D. C. $1.

Report to the Minister of Transport Upon the Accidents That Occurred on the Railways of Great Britain During the Year 1925. Defines the various types of accidents and discusses the results of 1925. 21 p. Pub. by H. M. Stationery Office, London, England. Sixpence.

The Tariff File, by George W. Hooker. On maintaining a usable tariff file in both railroad and industrial traffic departments, discussing equipment, and methods of obtaining tariffs, as well as filing methods. 67 p. Pub. by LaSalle Extension University Press, Chicago, Ill. Cloth, $1.25; paper, $1.

Periodical Articles

Ain't It a Grand and Glorious Feelin'? by Clare Briggs. Cartoon depicting emotions of careful motorist who stopped to let "one of the very longest" freight trains pass. New York Herald-Tribune, November 23, 1926, p. 30.

Looking North Over New Channel of Temporary Width. Old Channel and Southbound Main on the Left, Old Northbound Main and Bridges on the Right

Reading Changes River Course to Effect Economies

Work at Port Clinton, Pa., improves track alinement and eliminates a 1650-ft. tunnel and two steel bridges

ONE of the most interesting and effective realinement projects undertaken in recent years is that which has just been completed on the main line of the Reading, a short distance south of Port Clinton, Pa. At this point, located in the valley of the winding Schuylkill river between the high rolling foothills of the Blue Mountain range, the Reading faced the immediate problem of enlarging and relining a 1,650-ft. brick lined tunnel through solid rock and the renewal of two large steel bridges, or of changing the course of the Schuylkill river for a distance of approximately 2,000 ft. and relocating its two main tracks so as to avoid the tunnel and bridges.

The magnitude of both solutions was apparent, each being estimated to cost in the neighborhood of $500,000. It was clear, however, that the latter solution would be more practical and economical in that it would result in a new permanent roadbed of better alinement which could be widened readily to meet future requirements, and at the same time avoid both the tunnel and bridges with their constant maintenance expense. Adopting the plan of changing the course of the river, the Reading started work on the project in January, 1924, which for the most part involved the digging of a new river channel about 1,200 ft. long and 210 ft. wide through the toe of a steep slope, and the realinement of its northbound and southbound mains for distances of approximately 1 and 1½ miles respectively. The former part of the work necessitated the removal of about 275,000 cu. yd. of material, while the latter involved a half-mile cut from which about 75,000 cu. yd. of material was removed, approximately 70 per cent of the material in each case being loose or solid rock.

Topography Presented Difficulties in Selecting Original Alinement

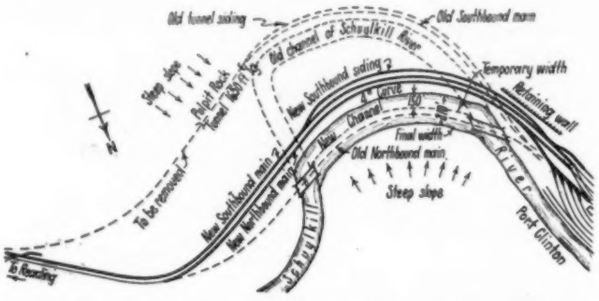
The conditions existing just south of Port Clinton which made this work necessary were brought about by the meandering of the Schuylkill river, which at this point makes a sharp U-shaped bend, swinging close to the steep rocky slopes of the south side of the valley. The problem originally encountered in locating a line through this territory was, therefore, that of bridging the river at two points or of following the course of the river as far as practicable and then tunneling through the hillside to a connection with the proposed location of the line southward toward Reading. While both projects were carried out finally, the tunnel route was adopted first, the construction of the tunnel taking place between 1838 and 1842. This tunnel, which from a local landmark is known as Pulpit Rock tunnel, is a single track bore through solid rock 1,650 ft. long, lined throughout with brick.

For many years this tunnel served the requirements of the road, but with increased traffic, double tracking became necessary through this territory and a second main track was laid about 1874. In order to avoid enlarging and double tracking the tunnel, this second track was laid north of the original line, diverging from it about 1½ miles south of Port Clinton, extending across the river channel at two points, by reason of the abrupt curve in the river, and joining the original alinement

again about 800 ft. south of the station. The crossings of the river channel were effected in each case by steel trusses supported on stone masonry abutments and piers. The southerly bridge consisted of two truss spans, having a total length of 302 ft., while the northerly upper bridge was made up of three trusses having a combined length of 436 ft.

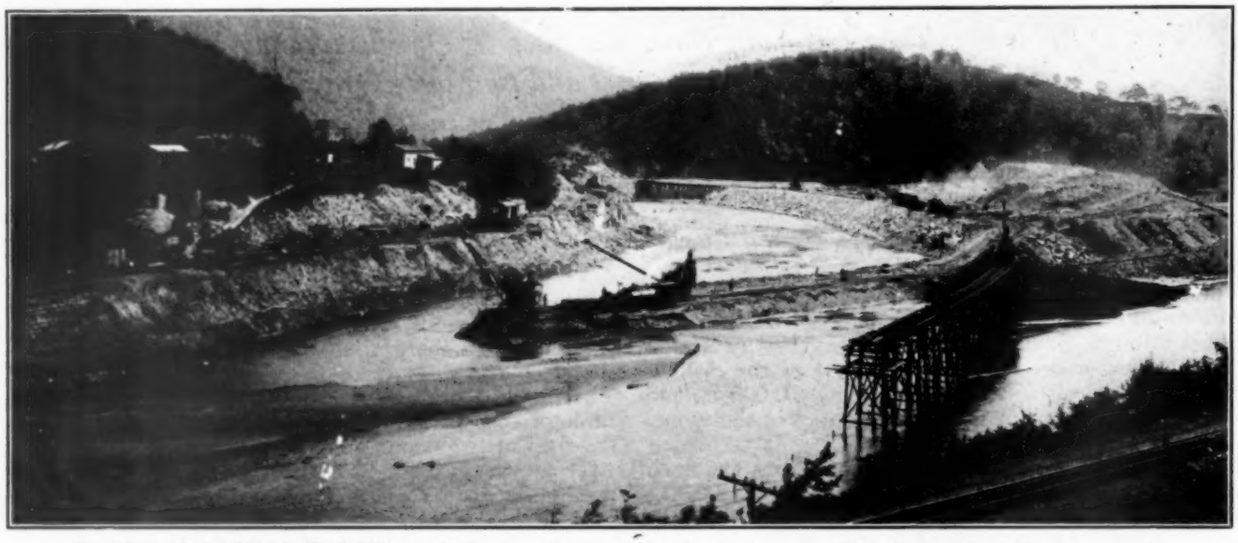
With two main tracks, the traffic problem at this point was solved, the tunnel route being used for southbound traffic and the bridge route for northbound traffic. During recent years, however, with the adoption of heavier power, larger and heavier equipment and increased loadings, both the tunnel and the bridges have been taxed to their capacities. The tunnel on the one hand provided insufficient clearance for much of the present day equipment, which necessitated routing a number of southbound trains over the northbound track, and in addition required continual repairs to the brick lining which was being constantly torn out by the blast of locomotives. On the other hand, one of the two river bridges was beginning to show the effect of the heavy main line traffic, and its renewal was necessary.

Confronted with this situation and the desire on the part of the railroad to eliminate the tunnel and bridges with their many operating and maintenance disadvantages, the project of changing the river channel was started in January, 1924. Briefly, this involved the cutting off of the U-shaped swing in the river by digging a new channel across the peninsula in the mouth of the swing and then relocating the north and southbound main tracks on the new fill thrown up to form the outer or south bank of the new river channel. As the old northbound main track crossed the projecting point in a side hill cut, the new channel, the center line of which was to be practically parallel with the center line of the channel at both ends of the proposed new channel so as to keep out the water when the new river bed had reached an elevation below high water in the old channel. With the dikes in place, the cutting of the new channel continued, the material removed being used to build up the new south bank of the channel, except at the ends where the full width of the old channel was left open in each case to permit the unobstructed flow of the river until the new channel was completed. Practically all of the



The Channel and Track Changes Eliminated Two Bridges and a Long Tunnel

material used in this fill, as well as that used in building the dikes, was secured from the new channel cut and was hauled into place in four-yard contractor's dump cars. The transferring of the material from the new channel cut to the fill involved an extensive layout of narrow gage tracks, and kept about 40 cars and six narrow gage locomotives constantly in service. In building the embankment, the material was dumped first to one side and smoothed off, following which the track was



Opening of the North End Dike and Closing Off the Old Channel on the Right Took Place Simultaneously

old northbound main, was to be dug through the hillside which tapered out gradually to a few feet above the water level just south of the proposed south edge of the new channel. As it was necessary to keep the northbound main track in service until the new tracks were put in operation, the channel was first dug south of the northbound main to a width of about 150 ft. and then widened out later to the full width of 210 ft.

Hard Rock Makes Excavating Slow and Difficult

In cutting the new channel it was necessary, shortly after work was begun, to throw up dikes along the old shifted to the higher elevation and the material dumped to the other side. In this manner, sacheting back and forth, the entire fill across the peninsula was raised to its full height of about 20 ft.

While the construction of the embankment was a large project in itself, the most interesting and difficult problem was the cutting of the new channel, which for the most part was in solid flint-like rock. On the high side of the cut, which extended to a depth of about 60 ft., there was an overburden of about 15 to 20 ft. of earth, below which was a course of loose rock of about the same thickness. Beneath this material, solid strata of

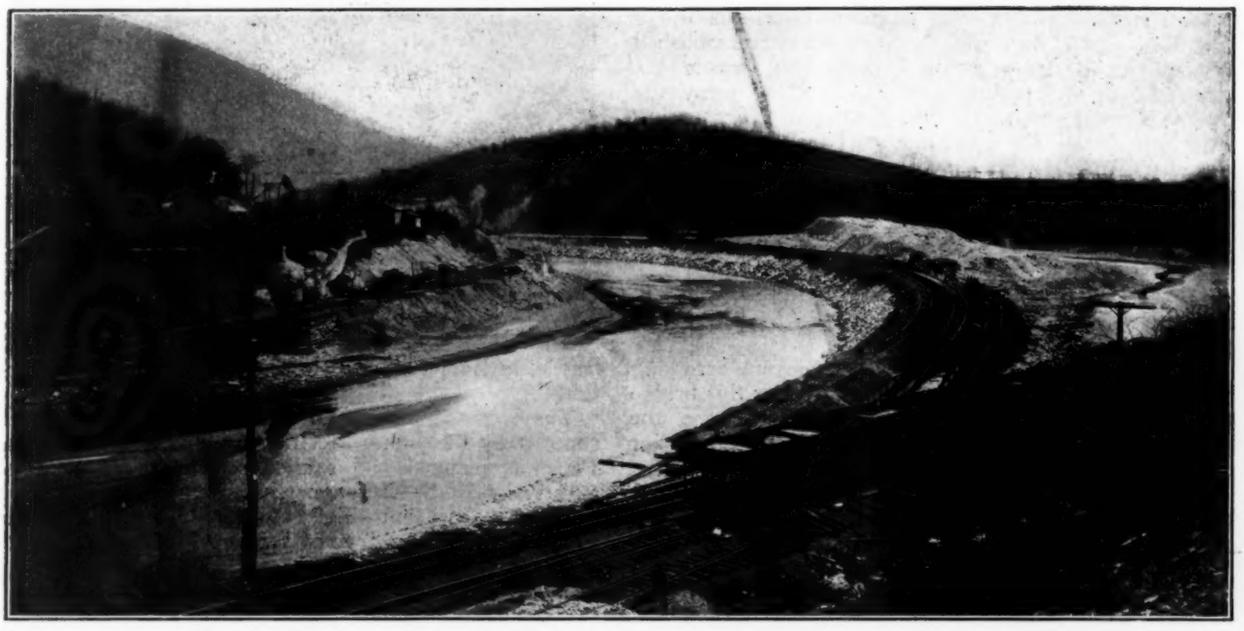
hard ledge rock were encountered which presented the greatest difficulty. For a depth of from 20 to 30 ft. this ledge had to be cut away to the new channel bed. In accomplishing this it was necessary to blast every foot of the way, which required the use of about 56,000 lb. of explosives. In preparing the rock for the blasting, a battery of 10 to 11 drilling machines was in constant operation, four air drills, four tripod steam drills and three gasoline driven well drills being used in this work. Owing to the hardness of the rock it was necessary to install a blacksmith's shop and a complete compressed air and fuel oil drill sharpening outfit which sharpened from about 60 to 100 drill points a day.

The removal of the top layers of earth and loose rock, as well as the solid rock, was accomplished by two 70-ton railroad type steam shovels equipped with 2½-yd. dippers, and four 20-ton revolving type shovels fitted with 1-yd. dippers. The latter units were operated on caterpillar treads and were fitted with interchangeable booms so that the shovels could be converted into drag lines or crane derricks. Another indication of the hardness of the rock encountered is evidenced by the fact that in spite of the use of manganese steel teeth on all of the shovel dippers, the average life of the teeth ranged from only 5 to 10 working days.

The cutting of the new channel provided considerably more than enough material for the new embankment which was first brought to grade and then widened out with spoil banks toward the old channel. The only special care taken in this work was along the river side of the embankment where, through its entire length, or about 2,000 ft., a solid 13-ft. facing of riprap was built up to protect the embankment against scouring during high water and ice jams in winter.

Trestles Used in Closing Off Old Channel

While the new embankment was being made, temporary pile trestles were built across the old river channel at each end of the fill in line with the new alinement. Both of these trestles served in making the closures of the old channel, while in addition, the trestle at the south end was used in connection with the removal of a considerable amount of material from the cut in the new alinement south of the river change, for use in the new roadway embankment. When these trestles were completed and the excavation of the new channel had progressed to the point where there was just enough material left, including that in the dikes, to make the two fills across the old channel, this work began, the material being dumped direct from the trestles. This particular stage of the work was so planned and carried out that as the old river bed was closed off, the new channel was opened, thereby precluding any interference in the river flow. Both dikes were removed in practically the same manner, the one at the down stream or south end being removed first in order to avoid interference by water. In removing the dikes the material was dug down to normal water level by steam shovels, and the balance was taken out, after heavy blasting, by drag line buckets. As in the case of the main part of the embankment, the river side of the two trestle embankments was also carefully faced with 13-ft. of riprap. When the embankment was completed the new tracks were laid over it up to the point where they were to be connected into the existing tracks at the north end.



Looking South Over the Cleared Channel of Temporary Width and the New Main Tracks

While all of this work was progressing, the new line was being graded for about a mile south of the channel cut-off. This work was in itself a considerable item as it involved a half-mile fill at the south end for the new location of the southbound main, and about a half-mile cut at the north end where both the northbound and southbound tracks are on a new alinement. The cut at the north end included about 75,000 cu. yd. of material, the greater part of which was solid rock. About 10,000 cu. yd of this material were used in making the double track embankment at the south end, while the remaining yardage was placed in the new embankment across the river bend, and south end trestle and in waste banks along the coves in the river.

After 28 months of practically uninterrupted work, the new southbound main was completed and put in service on May 16, 1926, followed by the completion of the northbound main on May 25. The old alinement having been abandoned, the remaining work involved the removal of the old northbound main and the two bridges, and the removal of about 65,000 cu. yd. of rock in

widening out the new channel on the north side to a final width of 210 ft. This work was begun at the north or upstream end and progressed down stream, the old lower bridge being kept in service until the work was near completion to provide an outlet for the rock still to be removed, and for the removal of the 70-ton steam shovel, which, together with two of the 20-ton shovels, was used in this work. The large shovel worked in the cut until all the rock had been removed down to about three feet above the normal surface of the water, excepting at the south end where a ramp, about 400 ft. long and 20 ft. high, was left in order to get the large shovel out of the cut. This ramp was also used in connection with a temporary trestle which was constructed across the river, parallel with and about 20 ft. from the lower bridge, to permit the removal of the remaining material in the channel after the large shovel had been taken out and the bridge taken down.

Bridge Is Dismantled by Acetylene Torches

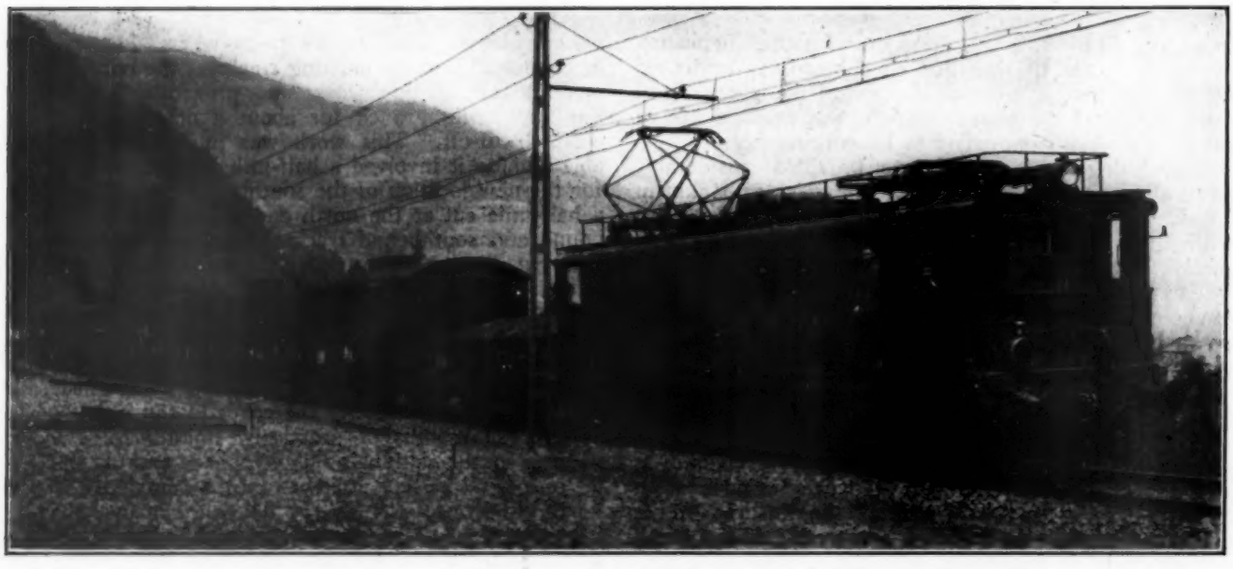
As the three-span truss bridge at the upper crossing of the channel was not fit for further service, this bridge was removed and scrapped, the work being accomplished by building a temporary pile supporting trestle beneath the floor structure and then cutting away the bridge members with acetylene torches. Proceeding from one end to the other the steel was removed and placed on cars by a locomotive crane, as were also the large stone blocks making up the piers and the east abutment. As each section of the bridge was removed, the crane also pulled the piling in the temporary trestle. The west abutment of the bridge was left in place to prevent scouring of the embankment which makes a sharp bend at this piont, directing the water to the new channel.

The two-span bridge at the lower channel crossing was also removed, but owing to the fact that this bridge was in fair condition and fit for further service, the members of each truss were taken down with care for reassembling in new locations.

With both bridges removed, the work of cutting down the north side of the new channel to bottom elevation was completed, this being facilitated by the opening of the sluice gates in a dam about one mile south, which kept the water in the river at minimum low stage. When the new channel excavation was entirely finished, all of the grading equipment, including the locomotives, narrow gage cars and one of the steam shovels, were moved out over the temporary trestle. The remaining steam shovel was then converted into a drag line, and, backing up over the remaining portion of the ramp and the trestle, first removed the ramp and then pulled the trestle, leaving the channel entirely clear of all obstructions.

Cutting Through Solid Rock for the New Track Alinement South of the Channel Change

The work at Port Clinton, which was done under contract by the James McGraw Company, Philadelphia, Pa., was planned and carried out under the general supervision of S. T. Wagner, chief engineer, and Clark Dillenbeck, assistant chief engineer. The work in the field was in direct charge of William McCormick, assistant engineer.



Spanish Northern Freight Train with 90-Ton 3,000-Volt D. C., G.-E. Electric Locomotive

Interstate Commerce Commission Needs Relief

Creation of six or seven regional commissions advocated as remedy for faults in present federal railway regulation

By Walter M. W. Splawn

President and Professor of Economics, University of Texas; Former Member of the Texas Railroad Commission

FOR some time it has been clear that the Interstate Commerce Commission is overburdened, overworked, and well nigh overwhelmed by the great number of causes presented each year. From this congestion of business before the commission follow several serious and costly consequences.

First, except by proxy, the commission cannot hear all the causes presented.

Second, too much time elapses between the filing of a complaint and its final settlement.

Third, the expense of sending representatives to Washington deters many from seeking redress for wrongs suffered.

Commission Hears Cases by Proxy

I. In the days when the commission was young and of much less importance few complaints were filed with that body. Because of the small volume of business the members had the time to go from city to city as causes arose and to hear the testimony in the home town of the complainant. As the years have passed the volume of business attended to by the commission has steadily increased and in recent years it has reached enormous proportions. Each change in the Act to Regulate Commerce has added to the responsibilities and to the burdens of the commissioners. As their duties have become heavier, they have found it increasingly difficult to leave Washington. At present it is very seldom that the entire commission, or even a division of it, holds a hearing away from Washington; in fact, it is unusual for even a single commissioner to journey to the locality from which a complaint arises in order to hear testimony.

The commission has fallen into the practice of sending out attorney-examiners to make records. The examiner acts for the commission in passing on the admissibility of evidence and on all matters pertaining to a hearing. The examiner undertakes to make a brief summary and digest of the record and to set forth such conclusions as in his opinion the commission would or should reach in the event the commissioners had the opportunity to read and to study the record. One of the parties, and frequently both, seek to persuade the commission to adopt conclusions different from those recommended by the examiner. A division of the commission, and in some quite important causes the entire commission, hears oral arguments in order to determine if the commission should abide by the recommendations of the examiner.

These oral arguments constitute, in fact, the only contact the commissioners have with the case, and it is commonly believed that as a rule the commissioners hear these arguments without having had an opportunity to look at the record. They sit down to hear arguments about the issues involved and the significance of the testimony presented without having had the time to read the record, much less to hear the evidence as originally submitted. It is also believed that in many cases the commissioners appear for the hearing of oral arguments without having studied, and in some instances even without having glanced at, the examiner's report. Frequently a commissioner will interrupt counsel in the midst of argument to ask some question that would have been unnecessary had the commissioner, before coming to the bench, read even so little about the case as the examiner's report.

Conditions, Not Commission, at Fault

Under the circumstances, the commissioners are not to be adversely criticized. They are overburdened with the multiplicity of their duties. They go from oral argument to oral argument and find their hours between these arguments consumed with all sorts of conferences on pressing matters. Consequently, they come to the hearing room weary from a never-ending grind and sit down to hear arguments concerning a cause of which the most of them, and perhaps all of them, are ignorant. The complaint has been filed, the hearing set, the testimony taken, perhaps in some distant city or cities, briefs have been prepared by counsel and filed. The commissioners in all probability have heard of the case casually, and they have given a few perfunctory orders to make legal the acts of their clerks and examiners. The examiner closets himself and writes a report (including an opinion disposing of the issues) which he recommends that the commission should adopt. Then finally on a day set for oral arguments the commissioners, who must pass upon issues, appear.

This is their first opportunity to learn anything about the case. No witnesses are present. They were heard weeks, perhaps months, before by the examiner. A record, perhaps a very voluminous record, is available, but more than likely it has not been examined, and, if so, certainly not carefully. Counsel for the interested parties have filed briefs; they may also distribute notes on their oral argument. The commissioners sit to listen to the counsel for such time as they can allot to them. In the meanwhile the examiner, whose report is being attacked or defended by counsel for the several parties, sits meekly by, inarticulate, helpless during the arguments, and conscious that in all probability not more than one commissioner, if one, has so much as glanced through his report.

Satisfactory Oral Presentations Impossible

Counsel understand the situation; and they undertake, in the brief time allotted, to inform the commission about the content and the significance of testimony which has been painstakingly prepared, likely at great expense, and which may have consumed days in its presentation. But

an attorney, in his efforts to summarize, to clarify, to establish, or to refute an important case or point, is frequently interrupted by some commissioner breaking in with a question. The commissioner is not to be censured. He has had no chance to become familiar with the case, certainly not sufficiently so as to realize what is or is not relevant or important. Some question arises in his mind. He does not know what bearing it may have. The point may have been carefully discussed by the examiner, but the commissioner perhaps has not read the examiner's report. He asks the question. The attorney realizes that to take time to answer the inquiry from the bench, though it may be irrelevant, will deprive him of his chance to "enlighten" the commission. But a pleader must be polite. He pauses to answer. Perhaps that little conversation serves to start another commissioner on a line of irrelevant interrogation. The distressed attorney sees his time slip away, consumed in more or less futile conversation between himself and members of the commission. His chance to make the carefully prepared argument from which he hoped so much is forever gone.

These observations are in no sense to be regarded as a criticism of the membership of the commission. The members are, as a rule, able, patriotic, and devoted to a conscientious discharge of their duties. They are the involuntary victims of a situation.

Imagine every federal suit at law or equity being filed in the Supreme Court. Imagine our abolishing the federal district courts and courts of appeal, and asking the Supreme Court to try from the beginning every cause within federal jurisdiction. Such a contingency would be unthinkable, but this is just the situation in which the Interstate Commerce Commission finds itself today.

The volume of business handled directly by and under the delegated authority of the commission has become so enormous that we must devise some means of hearing these causes without assuming that all these matters can be handled directly by the Interstate Commerce Commission. Those who pass upon the issues should, if possible, hear the testimony; those who make the final decisions should, at least, have the time to study with great care the records. The examiners are, in the main, energetic and ambitions young lawyers. Most of them are looking to some connection after they have learned enough about interstate commerce law, rate making, and other railway problems to justify some firm's offering them an advantageous connection. In a few instances young men of ability refuse offers from the outside and continue with the government.

It is surprising that the government is able to secure and retain for a time as competent men as those now serving the Interstate Commerce Commission as examiners. The questions to be passed upon, however, are too important to be heard by even the choicest of young men who can be had from $2,500 to $6,000 a year; much too important to be heard by young men, who, though theoretically they have no power, practically determine the decisions for the commission; and much too important also to be decided by older, more mature men, the commissioners themselves, who are denied, through force of circumstances, the time to master the records upon which they must pass.

Decisions Too Much Delayed

II. Under our present arrangement, too much time elapses between the filing of a complaint and its final disposition. This defect is inherent in the situation. The commission has too many causes. If some examiner is slow in writing up his report, there are other reports that can be considered. If some party wants a delay, there is every temptation to grant it. So much time passes between the initiation of a hearing and the final decision that, in some causes, conditions have entirely changed in the interim, and the relief sought, if obtained at all, gives little hope of permanent benefit.

To illustrate the point: In my own state, in July, 1925, an examiner heard the application of certain railroad companies to build lines or extensions in the South Plains of Texas. Already a year and a half has passed, and no decision has been rendered. The people of the South Plains do not know whether or not any additional railway mileage will be authorized, and, if so, they do not know who will be permitted to construct the roads. More than enough time has elapsed for any one of the companies to have carried forward its plans to completion. Capital has stood ready for investment. People are clamoring for the railroad facilities, and yet no company has been able to secure a certificate under which it may proceed with construction.

The result is that the people of the South Plains are very much irritated; all the people of the state sympathize with them; and strong support is being given to the proposal to repeal that part of the Transportation Act which requires a certificate of public convenience and necessity before new mileage may be constructed. All this delay is not due to the fault of the commission, but to our overburdening it and not taking the pains to set up regulatory machinery adequate to the needs of the country.

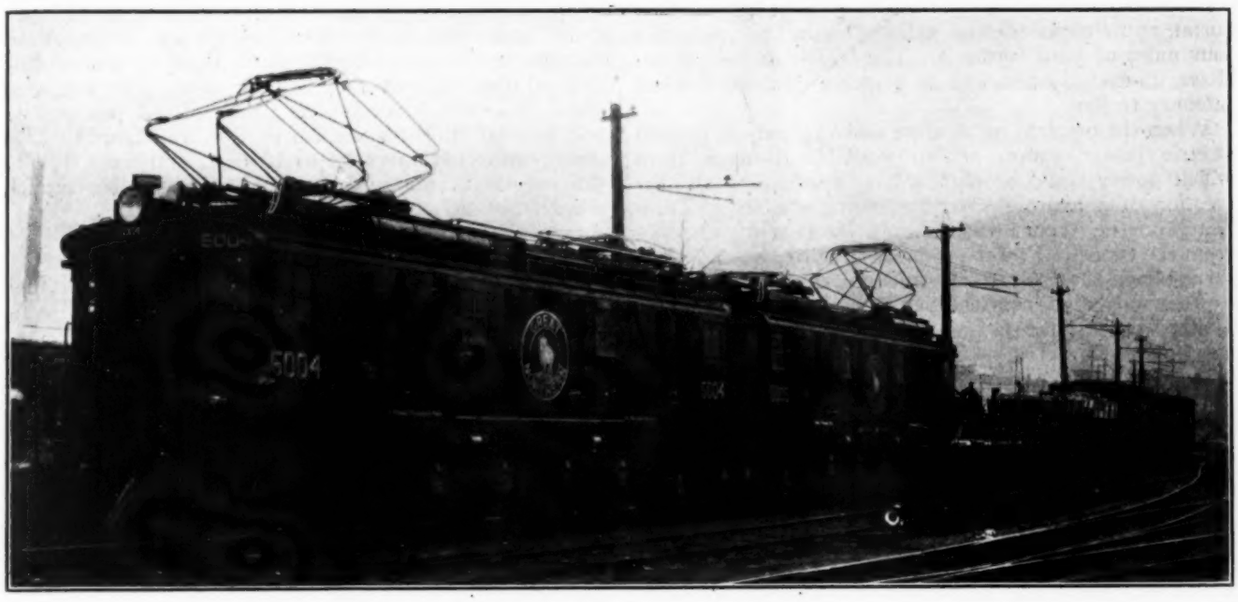
III. Washington City is far removed from most of the states. It is expensive to go to Washington and to send counsel to Washington. Moreover, the presentation of a cause to the Interstate Commerce Commission is regarded as an important matter, and counsel fix their fees accordingly. The expense of carrying a cause through to a final decision by the commission is so great that many, no doubt, continue to suffer in silence rather than attempt to seek relief through such tardy and uncertain channels.

Regional Commissions as the Remedy

IV. Conclusion: As a means of obtaining a more satisfactory organization for the regulation of interstate commerce, we should have a regional commission of three or five commissioners in each well defined freight territory. Six or seven such commissions might be required from the outset. They could be given final jurisdiction over matters local to their regions. Appeal could be taken to the Interstate Commerce Commission, somewhat as appeals are now taken from the lower courts to the Supreme Court. The details of jurisdiction could be worked out in the interest of economy, the expedition of business, and the requirements of justice. The expense would be very little more than that incurred under the present system, for the government spends about as much on the salaries of attorney-examiners and their traveling expenses as would be required to maintain these regional commissions.

The great advantage of such an arrangement would be that the commissioners would themselves hear the testimony in the causes which they decide. They could better master the problems of a limited area than can the Interstate Commerce Commission as at present constituted. The regional regulatory body would be much closer to the people looking to it for relief and advice. Cases could be disposed of more promptly. The expense for presenting complaints would be far less than under our present system.

From these considerations it appears that it would be advisable to amend the act to regulate commerce so as to provide for regional commissions and define the jurisdiction of such regional commissions, with a view to giving relief both to the Interstate Commerce Commission and, more particularly, to the public.



One of the Motor-Generator Electric Locomotives for the Great Northern

Electric Traction on the Great Northern

New locomotives will operate through tunnel seven and one-half miles long

TESTS have been run on the first of two motor generator type locomotives built for the Great Northern by the Baldwin Locomotive Works and the Westinghouse Electric & Manufacturing Company and the locomotive was shipped from East Pittsburgh, Pa., on November 20. The present undertaking involves the revision of the original electrification between Tye, Wash., at the western end of the Cascade Tunnel and the eastern portal of the same tunnel, and the extension of the electrification westward to Skykomish, Wash. The electrified mileage will thus be increased from four miles to 24 miles of main line trackage, exclusive of yards.

This electrification project constitutes what is reported to be the first step in a program that will include 96 miles of main line via a new tunnel, from Gold Bar to Wenatchee.

By eliminating the duplication of helper service, the delays caused thereby, and other losses of time incident to steam operation such as watering, refueling, standby losses, etc., the electrification is calculated to bring material savings in operating costs. In addition, it will permit faster train movement over the section involved and will virtually fulfill in every respect the requirements of present operating conditions. Consideration has been given to future requirements by an ample allowance for expansion.

In order to secure the advantages of alternating-current transmission and trolley and the direct-current traction motors, the motor-generator type of locomotive was chosen. This will draw power from an 11,000-volt single-phase, 25-cycle trolley. By using this type of locomotive it is possible to take advantage of the inherent merits of both the alternating-current and the direct-current systems. This means high-voltage transmission to the locomotives with minimum copper loss and power loss, static unattended transformer stations along the railway line, light overhead construction, plus the advantages of direct-current traction motors and practically unlimited flexibility of control in operation and regeneration.

Conditions Governing Operation

The main line of the Great Northen which extends from St. Paul, Minn., to Washington, has the lowest ruling grade to the Pacific coast of any of our western railroads. The line is laid with heavy rails and is double-tracked at most of the critical points. The heaviest and most severe grades against load movement are encountered in crossing the Cascade mountains in Washington, where the line is single track. Here the rise to the summit on both sides is very precipitous, and on the west slope a very circuitous route is required to make the ascent. Many snowsheds are required to shelter this section of the line from the deep snow and slides during the winter season.

There are several tunnels along the circuitous route on the western slope, the longest of which is the Cascade tunnel, at the summit. This tunnel, constructed on a 1.7 per cent grade, is about 2.75 miles long. The original electrification which is now undergoing modification, was installed through this tunnel in 1909, mainly for the purpose of eliminating gas and smoke so as to expedite train movement. It extended from Tye at the

west portal to Cascade Tunnel Station at the eastern portal, and comprised four miles of main line track and four miles of yard trackage. The 6600-volt, a-c. three-phase, 25-cycle system was used with a double overhead catenary trolley.

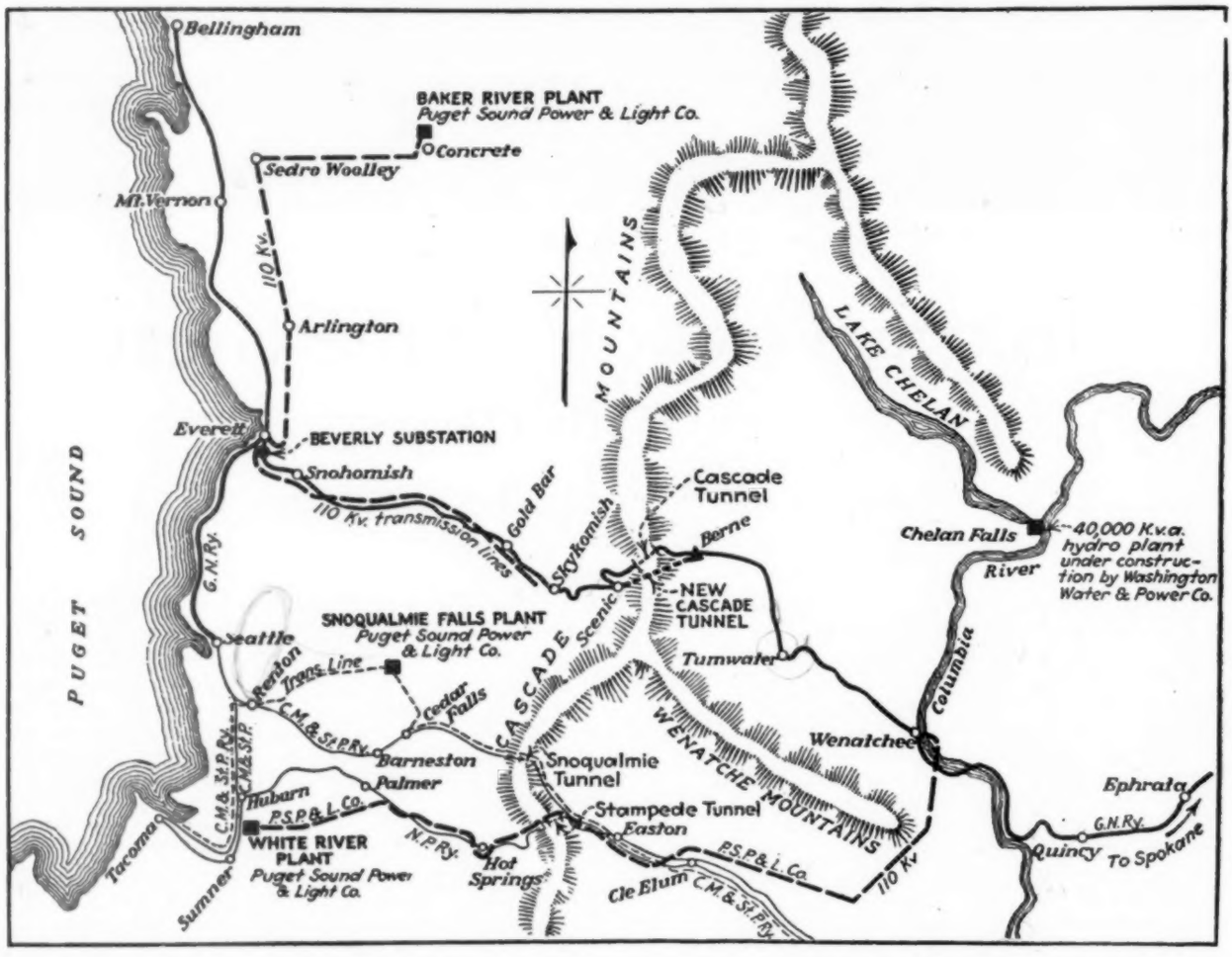
When the original installation was made there was no electric power supply within available distance from which power could be obtained. This necessitated the erection of a hydro-electric generating station at Tumwater on the Wenatchee River, a distance of 30 miles from the tunnel. Power produced here by two 2000-kw. three-phase, 25-cycle, 6600-volt units was transmitted to the substation at Cascade Tunnel at 33,000 volts. Water was brought to the plant, which operated under a head of 176 ft. in an 8½ ft. flume, two and one-half miles long.

The original electrification itself undoubtedly has served the purpose for which it was installed—the relief from an intolerable condition under steam operation. However, because of its special requirements of organization and operation, the electric service has been tolerated under extremely high operating costs.

Between Seattle and Skykomish, the profile shows that the grades are not unduly heavy, nor are the curvatures excessive, the heavy grades and curves being confined to that section on the west slope of the Cascade mountains, between Skykomish and Cascade tunnel and on the east slope between Cascade tunnel and Leavenworth. With condition on the east slope the railway is not especially concerned at this time, as certain contemplated changes in line with other reasons, have for the present delayed the electrification of that side. On the west slope, however, a continuous grade of 2.2 per cent is encountered from Skykomish to Tye, a distance of 21.4 miles, with curvatures up to 10 deg., and from Tye to the summit of the range, through the Cascade tunnel, the grade is 1.7 per cent.

Steam Operation

A 2500-ton time freight, out of Seattle, or rather Interbay, the terminal yard, consisting of about 60 cars, covers the 80 miles to Skykomish in approximately 5½ hours when hauled by a 250-ton Mikado type 2-8-2 oil burning locomotive having a normal tractive power of 64,300 lb. At Skykomish two 2-6—8-0 mallet type locomotives of 260 tons and developing a tractive effort of 78,300 lb. are cut into the train at about uniform distance apart, to assist on the 2.2 per cent grade to Tye. Including a delay at Skykomish for this operation of one hour and for water at Scenic of 20 minutes, the 21.4 miles to Tye is covered in 4½ hours. On arrival at Tye, the steam helpers are replaced by the electric locomotives, located two ahead and two in the center of the train, and from Tye, the run to Cascade tunnel station is made in 22 minutes. Allowing 15 minutes at Cascade tunnel for cutting out the electrics and inspecting air



Map of Everett-Wenatchee Section, Showing Location of New Tunnel and Power Lines That Will Furnish Energy for the Electrification

brakes, the train when reassembled completes the remaining 53 miles to Wenatchee in four hours.

Reasons for Extending Electrification

After a thorough review of operation, the Great Northern management, realizing that considerable improvement could be made in the schedule and a substantial reduction in operating expenses, authorized electrification that would accomplish the desired results. This authorization provided for a new system of electrification as past experience dictated that extension of the original system was inadvisable.

The experience, both favorable and unfavorable, gained from the original electrification was very helpful in selecting the new 11,000-volt, 25-cycle, single-phase system.

Some of the reasons for the use of 25 cycles on the new system as compared with the standard commercial frequency of 60 cycles are:

1. Facilitates use of full capacity of 6000-kw., 25-cycle output of Tumwater plant because of liberal design of three-phase machines which make possible full nameplate capacity at single-phase.
2. Some kind of rotating apparatus would have been required to convert single-phase railway load into balanced three-phase load on the power system supplying the energy.
3. Twenty-five cycles is standard for railway transformers and much other equipment which has been developed.
4. Less interference with communication circuits at 25 cycles.
5. Regulation of 25-cycle system is considerably better on fluctuating loads, and losses are less than on 60-cycle system.
6. Copper ground return because of higher impedance of rails would have been required for 60 cycles.

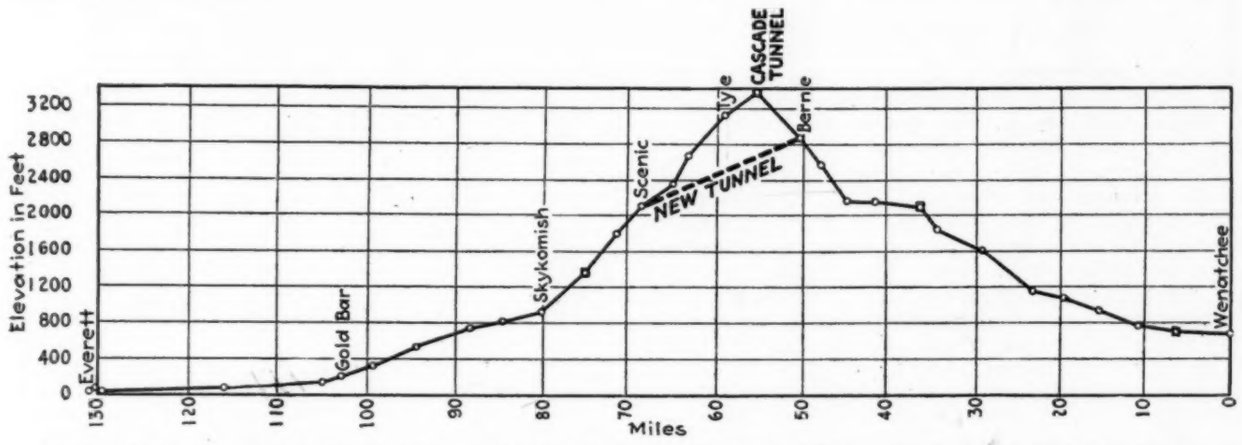
With the limitations contemplated in the power supply for the new electrification, it will be possible always to operate at practically an unlimited number of speeds up to the continuous rating of a locomotive because of the great flexibility of the motor-generator type unit. Furthermore, the method of accelerating a train by means of voltage control of the motor is ideal from the standpoint of economy, both in starting losses and in power demand from the sources of supply and by using a synchronous motor to drive the motor generator set on the locomotive, power-factor correction is obtained, making practically the entire output of the station useful power.

For regenerative-braking, the same flexibility of control is available as in motoring. It is possible to regenerate at all speeds within the established range of the locomotive, to practically standstill. The varied train weights over this section and the conformation of the country, make this wide range a very effective feature, as the speed, while regenerating, can be adjusted to suit the grade of any particular section.

Locomotives

The two new Baldwin-Westinghouse electric locomotives for the Great Northern each consist of two cabs which are identical, mechanically and electrically. Each one of these units is self-contained, that is, fully equipped to operate alone. Present plans are to operate two cabs as a road locomotive. Each locomotive weighs about 715,000 lb., is 94 ft. 4 in. long and has a continuous rating of 88,500 lb. tractive force 15.5 m.p.h. Maximum allowable speed is 37.5 m.p.h. and maximum rating is almost 7000 hp.

These two unit locomotives are the most powerful of this type ever built. One of them has been shipped to the Great Northern at Skykomish and the other will be completed in December.



Profile of Heavy Grade Section of the Great Northern Betwee n Everett and Wenatchee in the State of Washington

Power Supply

The Great Northern has contracted with the Puget Sound Power & Light Company to supply all power for the electrification. Under the agreement the Tumwater generating plant will be operated by the power company and tied in with its system through a 44-kv. railway transmission line at present and later possibly by its 110-kv. transmission line going via another route over the mountains to Wenatchee.

The present project involved the construction of a 110-kv. three-phase, 60-cycle transmission line from the Beverly substation of the power company, near Everett, Washington to Skykomish; the erection of two new outdoor substations at Scenic and Cascade, respectively, a frequency changer set will also be installed in the Skykomish station where connection is made with the 110-kv. transmission line of the power company and the 44-kv. railway transmission line, which is also being erected at this time from Skykomish to Tumwater.

The two 44-kv. railway transmission lines, the trolley construction and signal line will all be carried on single poles along the right-of-way. The trolley contact line is No. 4/0 cadmium bronze supported by inclined catenary type of construction.

Careful consideration has been given to possible interference to signal and communication lines due to the single-phase system. The d-c. signal system will be changed to a-c. 60-cycles with 6600-volt transmission. Telegraph and telephone lines enroute will undergo general revamping, using necessary cables or removing

them from the right-of-way entirely. Local telephone lines heretofore adjacent to the right-of-way will be removed to a convenient distance therefrom to avoid inductive troubles. Distance as the most effective remedy has been the general basis on which the problem of inductive interference has been considered.

Metering presented some interesting problems to the power company owing to the condition of the contract which calls for the simultaneous measurement of demand at two widely separated points. In addition, it is necessary to take into account power fed back into the power company's system by the Tumwater plant and by the electric locomotives when regenerating. Power will be measured by two three-phase ratchet meters at each point and demands will be measured by graphic meters to obtain simultaneous records at the two points.

According to the contract billing for power will be made on the basis of the average of the three highest five-minute demands during the month. In the event of power failure any peaks occurring during the first fifteen minutes after service is restored are to be ignored. As all power taken by the railway company from the 110-kv. line of the power company will first pass through the frequency changers, driven by synchronous motors, it will be possible to maintain unity power factor or even a leading power factor if desired.

Simultaneously, with the rehabilitation and extension of the original electric section, a new tunnel through the Cascade Mountains was begun, and when completed this will be the longest railway tunnel in America—seven and three-quarter miles. The present line crosses the divide at an elevation of 3385 ft. above sea level. It has sharp grades and curves, numerous snow sheds and several tunnels one of which is the Cascade, 13,873 ft. long. On account of heavy snow fall, which reaches a maximum of 410 inches at one point and 670 inches at the Cascade Tunnel each season, it is difficult and expensive to keep the line open for operation. Increasing importance of a thoroughly dependable line, the necessity for additional snow sheds on the present route and the heavy repairs on the existing snow sheds brought expenditures to a point where a new line on a lower level would show a substantial gain.

The new tunnel line will shorten the right-of-way more than 7½ miles, eliminate nearly six complete circles of curvature and will escape most of the severe snow trouble. The grade will be the same as the present tunnel, but the elevation will be 500 feet lower. Electric power is being used throughout in its construction which it is expected will be completed in about two years.

Underwood & Underwood

Thomas Edison Photographed After Proving He Still Retained His Telegrapher's Skill in a Test on a D. L & W. Special Train—To His Right is J. M. Davis, President, and to His Left, W. H. Truesdale, Chairman of the Board, of the D. L. & W.

Freight Car Loading

WASHINGTON, D. C.

LOADING of revenue freight for the week ended November 13 amounted to 1,112,886 cars, an increase of 62,946 cars as compared with the corresponding week of last year and an increase of 96,043 cars as compared with 1924. Increases as compared with both preceding years were reported in all districts except that the Northwestern showed a decrease as compared with last year, and increases as compared with last year were shown in all commodity classifications except grain and grain products, coke and ore. As compared with 1924 there were decreases in the loading of grain and grain products, livestock and forest products. Coal loading for the week reached the record figure of 242,095 cars, an increase of 55,686 cars as compared with last year. Miscellaneous freight, 397,431 cars, showed an increase of 9,287 cars and merchandise, l.c.l., an increase of 3,368 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED SATURDAY, NOVEMBER 13, 1926

Districts	1926	1925	1924
Eastern	256,398	234,848	236,371
Allegheny	230,032	203,845	197,420
Pocahontas	64,620	59,621	52,673
Southern	161,643	153,715	156,901
Northwestern	148,019	154,420	133,253
Central Western	163,856	161,028	163,364
Southwestern	88,318	82,463	76,861
Total Western districts	400,193	397,911	373,478
Total all roads	1,112,886	1,049,940	1,016,843
Commodities			
Grain and grain products	45,869	46,797	55,314
Live stock	38,198	36,860	45,363
Coal	242,095	186,409	189,728
Coke	13,077	15,702	10,039
Forest products	67,374	67,004	69,631
Ore	37,858	41,348	20,836
Mdse. L.C.L.	271,044	267,676	253,791
Miscellaneous	397,431	388,144	372,141
November 13	1,112,886	1,049,940	1,016,843
November 6	1,137,210	1,062,646	995,279
October 30	1,216,432	1,091,154	1,073,374
October 23	1,209,043	1,120,677	1,113,053
October 16	1,210,163	1,106,009	1,102,300
Cumulative total, 45 weeks	47,508,009	45,542,689	43,169,496

The freight car surplus for the period ended November 8 averaged 88,130 cars, including 12,539 coal cars and 50,303 box cars.

Car Loading in Canada

The Canadian Thanksgiving day fell, this year, on November 8, which accounts for a sudden slump in car loadings for the week ended November 13, from 83,812 to 75,066 cars.

Notwithstanding this, however, loadings were heavier than for the corresponding week of 1925 by 1,350 cars. The gain is all the more remarkable because in 1925 the holiday did not fall in this week.

	Total for Canada			Cumulative totals to date	
Commodities	Nov. 13, 1926	Nov. 6, 1926	Nov. 14, 1925	1926	1925
Grain and grain products	21,174	23,990	21,618	413,959	389,200
Live stock	3,460	3,280	3,189	100,387	109,313
Coal	8,527	9,163	8,250	271,543	189,885
Coke	505	501	457	16,876	13,256
Lumber	3,220	3,595	3,230	164,302	161,487
Pulpwood	1,230	1,181	1,365	116,891	112,351
Pulp and paper	2,458	2,318	2,350	107,230	92,327
Other forest products	2,620	3,125	2,660	139,112	126,899
Ore	1,604	2,236	1,620	79,584	64,391
Merchandise, L. C. L.	15,370	18,173	14,310	739,807	690,935
Miscellaneous	14,898	16,250	14,667	651,097	587,676
Total cars loaded	75,066	83,812	73,716	2,800,788	2,537,720
Total cars received from connections	36,400	37,861	33,949	1,681,552	1,500,557

New Lines in Texas Authorized

I.C.C. approves applications of Burlington and Frisco subsidiaries but denies others

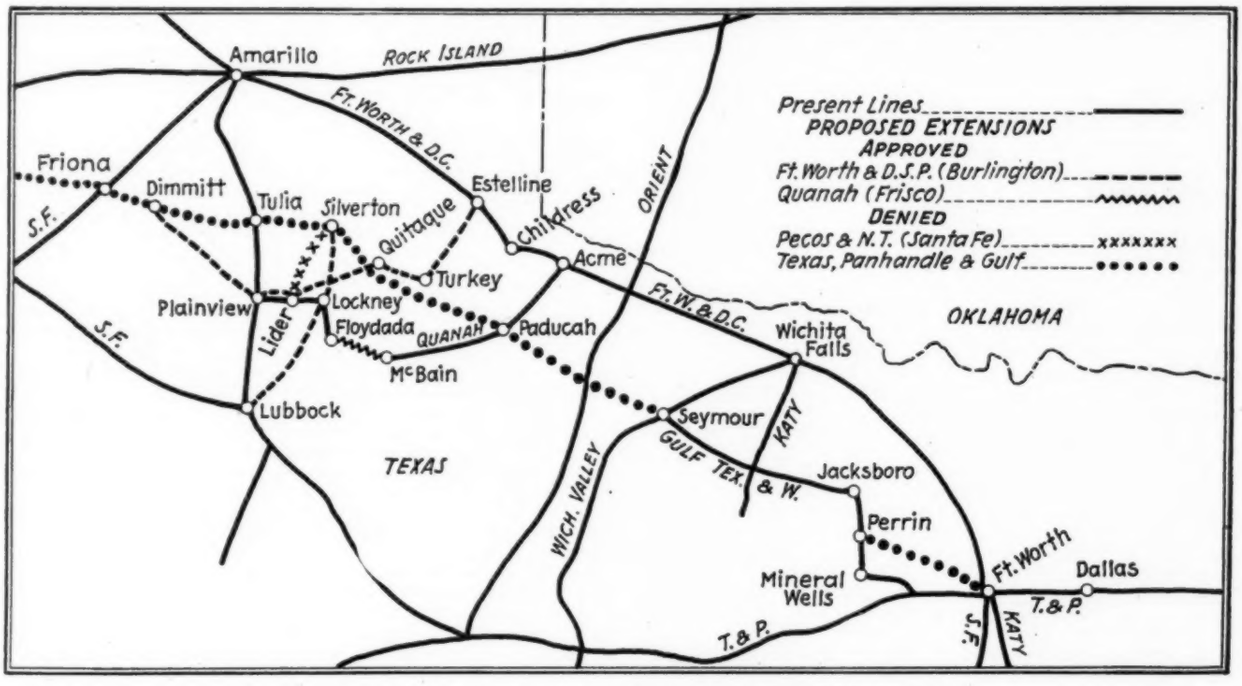
WASHINGTON, D. C.

CONSTRUCTION of 202.1 miles of new line in the Texas Panhandle by the Fort Worth & Denver South Plains, a subsidiary of the Burlington system, and of an extension of 27 miles by the Quanah, Acme & Pacific, a subsidiary of the Frisco system, was authorized by the Interstate Commerce Commission in a decision made public on November 19 in which the commission also denied the applications of the Pecos & Northern Texas, a subsidiary of the Santa Fe, to build 88 miles of line, and of the Texas, Panhandle & Gulf, an independent company, to build a total of 360 miles.

A consolidated report was made by the commission on competitive applications of four companies which proposed a total of 677 miles, each duplicating to some extent the project of one or more of the other companies. The report is at variance with the recommendations made by the commission's examiners in a proposed report made public earlier in the year, which had given preference to the project of the Texas, Panhandle & Gulf if control of it should be obtained by a major system other than the Burlington or Santa Fe. The denials are without prejudice to a renewal of the applications should the Denver fail to complete its proposed lines by December 31, 1929, or the Quanah fail to complete its extension by the end of 1928.

The lines proposed by the Fort Worth & Denver South Plains as authorized involve an estimated expenditure of $6,270,572, beginning at a connection with the main line of the Fort Worth & Denver City at Estelline and extending in a general westerly direction through or near Turkey, Quitaque and Plainview to a point near the center of Castro county, approximately 132.5 miles. From a junction with this line at a point in Floyd county, approximately 16.6 miles east of Plainview, a branch would extend southerly and southwesterly through or near Lockney and Petersburg to Lubbock, approximately 50.5 miles, and another branch from the same junction with the main line extends northerly to Silverton, approximately 19 miles. The lines form a fairly direct route from Estelline to Plainview, Dimmitt and Lubbock.

The extension of the Quanah is from McBain to Floydada, 27 miles, at an estimated cost of $1,032,245.



Map of Northwest Texas, Showing Extensions Approved and Denied

The Texas, Panhandle & Gulf asked authority to build from Tucumcari, N. M., southeasterly to Seymour, Tex., approximately 303 miles, and from Perrin southeasterly to Fort Worth, Tex., about 57 miles. The Pecos & Northern Texas asked authority for two branch lines, from Lider to Silverton, approximately 30 miles, and from Plainview to Dimmitt, approximately 43 miles, and an extension from Floydada to a point near the southeast corner of Floyd county, approximately 15 miles.

It was clearly not the intention of Congress by the provisions of the transportation act to put a stop to all competitive railroad building, the commission says in its report, and with reference to the claims of priority in the territory made by the various companies against each other it says that the question of priority is of minor importance and, unless other things are equal, is to be given little consideration in determining whether the public convenience and necessity require the construc-

tion of a line of railroad by one appplipcant rather than by another. Among reasons for denying application of the T. P. & G., are that "the ability of the T. P. & G., to finance its project is very doubtful" and that the cost of constructing the line proposed would probably be much more than the applicant's estimate. In comparing the lines authorized with the proposals of the Santa Fe it is stated that "some weight should be given to the advantages of competitive service to the principal rail centers of the Plain."

Extract of the Commission's Report

Extracts from the commission's report, including the full text of its conclusions, are as follows:

We are called upon in these proceedings for a decision as to the additional railroad facilities which shall be provided for that part of the so-called Panhandle of Texas known locally as the South and East Plains, and contiguous territory to the east in Texas and to the west in New Mexico. Four companies, the Texas, Panhandle & Gulf, the Pecos & Northern Texas, the Fort Worth & Denver South Plains and the Quanah, Acme & Pacific have filed applications under the provisions of paragraphs (18) to (20) of section 1 of the interstate commerce act for certificates that the present and future public convenience and necessity require the construction of certain lines of railroad in the territory involved. A total of 677 miles of main line, branches and extensions is proposed.

The project of each company would duplicate to some extent the project of one or more of the other companies. In each proceeding we must consider the need of certain territory now remote from railroads for rail facilities, and the need for a more direct outlet from the South and East Plains to the east and southeast. The lines proposed, other than that of the T. P. & G. would lie entirely within the state of Texas.

Hearings were held upon each application, three of them being heard together, and three reports proposed by the examiners, covering five of the applications, were served upon the parties. Thereafter the proceedings upon the five applications covered by the proposed reports were consolidated, exceptions to proposed reports were filed, and oral argument was had.

At the opening of the argument a motion was made to consolidate the proceeding upon the sixth application with the proceedings upon the others. In order to permit a comprehensive view of the situation, the proceedings should be given common consideration and may for convenience be disposed of in this report. Our conclusions differ from those recommended by the examiners.

The T. P. & G. states that it is a corporation organized under the laws of Texas and New Mexico. It appears, however, that there are two corporations, one organized under the laws of Texas and the other under the laws of New Mexico. Each was organized for the purpose of constructing and operating a railroad. The Pecos is a corporation organized to construct and operate a railroad, but is not an operating company. It is a subsidiary of the Atchison, Topeka & Santa Fe. Its existing lines are operated by other subsidiaries of the same system, chiefly by the Panhandle & Santa Fe, which would also operate its proposed lines. The Denver was incorporated March 6, 1925, in the interest of the Colorado & Southern which is to own all its capital stock except directors' qualifying shares. The Denver's proposed lines are to be operated by the Fort Worth & Denver City, a subsidiary of the Colorado & Southern, which in turn is controlled by the Chicago, Burlington & Quincy. The Pecos and the system to which it belongs will sometimes be referred to herein as the Santa Fe. The Burlington system will sometimes be referred to as the Denver. The Quanah is an independently operated subsidiary of the St. Louis-San Francisco, which owns all its capital stock.

General Territory to be Served

The proposed lines of the Santa Fe, the greater part of the Denver's proposed lines and parts of the lines proposed by the T. P. & G. and the Quanah are projected in the South Plains. The Staked Plain is a high table-land covering an area of approximately 30,000 square miles in northwest Texas and the extreme eastern part of New Mexico. Its limits are marked by a steep escarpment, precipitous in places, known locally as the Cap Rock, raising the Plain from 500 to 700 feet above the surrounding country. The extreme northern part of the Plain is in the Panhandle and the region is largely known by that name. The main line of the Fort Worth & Denver crosses this part of the Plain, passing through Amarillo. The name South Plains is given to a large part of the Plain extending southward from the Panhandle country. This region is traversed by several lines of the Santa Fe and is directly served only by that system. The record includes some discussion of railroad lines to serve locally most of the area bounded on the northeast by the Fort Worth & Denver from Fort Worth to Amarillo, on the northwest by the Santa Fe from Amarillo to Farwell, on the southwest by the Santa Fe from Farwell to Sweetwater, and on the south by the main line of the Texas & Pacific Railway, hereinafter called the T. & P., from Sweetwater to Fort Worth. That part of the South Plains within these limits includes most of the area that would be directly served by the projects of the Santa Fe, the Denver and the Quanah, much that would be directly served by the T. P. & G., and all that is disputed by the several applicants.

Until about 20 years ago the only industry in the South Plains region was cattle raising. The testimony is that from 75 to 90 per cent of the land is cultivable and generally fertile; that the average rainfall is more than 20 inches and is mostly in the growing season; and that in a large part of the area abundant water is found in wells of moderate depth and the topography favors irrigation. The principal crops grown are wheat, grain sorghums and cotton. The yield of wheat is uncertain owing to the variations of seasons. Grain sorghums seldom fail. Cotton is very drought-resistant, yields well, and is believed to be immune to the boll weevil. Alfalfa is grown under irrigation and in the depressions along some of the "draws" or dry watercourses where there is moisture from sub-surface water. Some vegetables are grown for market on irrigated land near Plainview. The raising of cattle and hogs is an important industry.

Hearings, Protests, Recommendations of State Authorities

A hearing upon the application of the T. P. & G. was held for us by the Railroad Commission of Texas. The Fort Worth Chamber of Commerce and the Fort Worth Freight Bureau appeared in support of the application. The Forth Worth & Denver, the Wichita Valley Lines, also subsidiaries of the Colorado & Southern, the Quanah, and the Motley County Railway appeared in opposition to the application. Appearances were also entered for the Gulf, Texas & Western, hereinafter called the Gulf, and its receiver. Subsequently, upon application and for good cause shown, the Santa Fe was permitted to intervene in opposition to the application. The Governor and Railroad Commission of Texas and the Governor and Corporation Commission of New Mexico have recommended that the application be granted.

In the proceedings upon the applications of the Santa Fe in Nos. 4747 and 4756, and of the Denver in No. 4769 each applicant protested against our granting the authority sought by the other and several intervening petitions were filed. A hearing upon the three applications was held before an examiner of this commission with whom sat the Railroad Commissioners of the state of Texas. Briefs in support of the Denver's application have been filed by the state of Texas and the South Plains Railroad Committee. Appearances in support of this application were entered on behalf of the Dallas Chamber of Commerce and the Fort Worth Chamber of Commerce, and briefs opposing it have been filed by the Quanah, and by the Gulf and its receiver. The T. P. & G. and the Texas Panhandle & Gulf Finance Corporation, hereinafter designated as the Finance Corporation, filed a joint brief opposing the three applications. The Railroad Commission of Texas has expressed the view that the public convenience and necessity require the construction by the Denver of that part of its proposed railroad from a connection with the Fort Worth & Denver to Plainview and Lubbock; that it also requires the construction of a line both to Dimmitt and to Silverton, but does not require the construction of lines to these places by both the Denver and the Santa Fe.

A hearing upon the application of the Quanah was held for us by the Railroad Commission of Texas. The Santa Fe appeared in opposition to the granting of the application. The Fort Worth & Denver and the South Plains Railroad Committee also appeared in opposition to the granting of the application, but only in so far as granting it might interfere with the issuance of a certificate to the Denver to extend its lines into the same general territory. The Railroad Commission of Texas has recommended that the certificate sought by the applicant be granted.

Objection to the granting of the application in No. 5372 was made by the Quanah and a hearing was held for us by a member of the Railroad Commission of Texas. Appearances were entered on behalf of the Quanah and of the East Plains Railroad Committee, which also opposes the granting of the application. No recommendation or representations as to this application have been made by state authorities.

In the final analysis the questions to be considered and the ones to which the evidence was mainly directed are (a) whether the public convenience and necessity require the construction of lines to serve those areas of the South Plains and adjacent territory that are now remote from a railroad; and (b) if there is need for such lines, which of the applicants are to be granted certificates. In answering the second question we must determine whether the public convenience and necessity require the construction of a more direct line or lines from the South Plains to the east and southeast, especially to Fort Worth and other cities of north central Texas; and whether the principle of maintaining competition between carriers shall be observed. The question of priority is raised by the Santa Fe and the Denver in that each claims to be the pioneer in the region and is therefore entitled to construct such lines as may be required, and by the Denver against the Santa Fe and by the T. P. & G. against the Denver with reference to the time of filing applications to provide the facilities claimed to be required. The question of priority is of minor importance and, unless other things are equal, is to be given little consideration in determining whether the public convenience and necessity require the construction of a line of railroad by one applicant rather than by another. In these proceedings it may be disregarded.

Additional Rail Facilities to Serve and Develop Territory

There is testimony that 15 miles is not too great a distance to haul farm products and that cattle can be driven 15 to 18 miles a day. All of the territory along the proposed line of the T. P. & G. is within 15 miles, straight-line distance, of a railroad with these exceptions: (1) an irregular area made up of parts of Baylor, Knox, and Wilbarger Counties, equal to about one-tenth of one of those counties; (2) an area between the Orient and the Quanah made up of parts of Cottle, King, and Dickens Counties, equal to about two-thirds of King County; (3) an area around Quitaque and Silverton embracing most of Briscoe County and parts of Cottle, Hall, Motley, Floyd and Armstrong Counties, equal to approximately two of those counties; (4) an area around Dimmitt including about two-thirds of Castro and approximately one-fourth of Lamb Counties; and (5) an area made up of parts of Deaf Smith County, Tex., and Curry, Quay, and other counties in New Mexico, about equal in size to Curry County. At the hearing upon the application of the T. P. & G. there was much testimony for the applicant as to the great distances that products must now be trucked and cattle driven in order to reach a shipping point on a railroad; as to the cost of trucking products and supplies, and the loss from shrinkage in driving cattle long distances; and as to the unfavorable effect of these things on agricultural development, crop production, and the stock feeding business. Practically all this testimony relates to the three areas last described. There is some testimony as to the distance that cattle from King County must be driven to reach a railroad.

In describing the territory to be served by the Denver's proposed lines and the branches proposed by the Santa Fe, reference has been made to the distances to railroads from the country around Dimmitt, Silverton, Quitaque, Turkey, and nearby communities. At the hearing upon the applications to construct these lines much testimony was introduced to show that the country around the places named has great agricultural possibilities and that lack of rail facilities, necessitating long hauls and heavy trucking charges in moving products to a railroad station and bringing coal and other supplies therefrom, has restricted agricultural development.

Testimony as to agricultural possibilities in the territory that would be served by the Quanah extension and the Santa Fe's Floydada extension is similar to that given in the other proceedings. To show that additional rail facilities are not needed in the territory that would be tributary to the Quanah extension, the Santa Fe submitted a map showing that nearly all this territory is now within 15 miles of a railroad.

The proposed line of the T. P. & G. would bring within 15 miles of a railroad most of area (1), about one-fourth of area (2), nearly all of area (3) and about one-half of areas (4) and (5), described above as tributary to the line. The Denver's proposed lines would bring within 15 miles of a railroad nearly all of areas (3) and (4), and the proposed Santa Fe branches would serve a like purpose for about half of area (3) and most of area (4).

The area nearer to the Denver's proposed lines than to existing railroads would be approximately 3,800 square miles. Of this area about 2,500 square miles is either within 12 miles straight-line distance of the existing or proposed lines of the Santa Fe or is as near to them as to the proposed lines of the Denver. The 1,300 square miles remaining, which may be taken as the area to which the Denver would provide a convenient local service not offered by the Santa Fe, includes an area of about 1,250 square miles in Hall, Motley, Briscoe, and Floyd Counties. All this area is below the Cap Rock except a part that is in Floyd County, and the testimony is that this part of Floyd County is a broken country. Of the area in Hall County 150 square miles is within 12 miles of the Denver's existing line. The remaining 50 square miles of the 1,300 is an area between Lockney and Floydada, mostly south and east of Petersburg. From the foregoing it will be noted that the construction of the Santa Fe's proposed branches and that part of the Denver's main line from Estelline to Quitaque would give convenient local service to nearly all territory that would be served by the Denver's proposed lines, and to all territory that would be served by the T. P. & G. except areas (1) and (5). It will also be noted that the Santa Fe's Floydada extension would serve practically the same territory that would be tributary to the proposed Quanah extension. A witness for the Santa Fe testified that if the T. P. & G. were built on the route proposed nearly all of the region to be served by the Santa Fe's proposed lines would be within 15 miles of a railroad without building other lines than the T. P. & G. A witness for the South Plains Committee stated that if the T. P. & G. were built it would naturally get most of the traffic that the proposed branches to Silverton could get. A witness for the Denver stated that the tonnage the Denver's proposed lines would get would be a substantial part of the tonnage the T. P. & G. could expect to receive.

The total cost of building the Santa Fe's proposed branches and that part of the Denver's main line from Estelline to Quitaque would be $3,639,221. For the Denver to give service affording practically the same local convenience would, according to its estimates of cost, require an additional expenditure of $1,237,492. For the T. P. & G. to give such service and to furnish rail facilities to the two areas that would not be served by the Santa Fe or the Denver would, according to its estimates, require an expenditure of $9,177,500. Figures for comparing the cost of the Quanah extension and the Floydada extension have already been given.

Conclusions

The various applicants, on brief and in argument, have undertaken to show the superiority of their individual proposals as means of meeting the transportation necessities of the territories involved. It is unnecessary to state these contentions in detail. All have been carefully considered and weighed in reaching our conclusions.

The lines proposed in Nos. 3134, 4747, 4756, and 4769 are needed principally, and would be of use chiefly, for the local service to be rendered, reducing throughout large areas the length of hauls and drives to rail, saving large amounts now spent or lost on both outbound and inbound shipments and stimulating agricultural production and development. Rapid development would probably follow the construction of any line of railroad into those areas now remote from a railroad. The traffic should be sufficient to justify the construction of the two branch lines proposed by the Santa Fe and that part of the Denver's proposed line from Estelline to Quitaque. It is not shown that the territory between Seymour and Paducah is in need of additional rail facilities for local service, or that the local traffic would justify the provision of additional facilities. While some need is shown for a railroad in the territory centering on Curry County, N. Mex., its construction does not appear to be justified by the prospective local traffic. Much of the area to be served locally by the Quanah extension would be brought but little closer to a railroad than it now is to either the Santa Fe's Floydada branch or the Quanah's existing line. Only a very small part of the territory that would be served by the Quanah extension or the Floydada extension is in need of more convenient local rail facilities.

Reference to any map showing the various projects, and a statement as to the objects of the proposed lines and as to the character, present and prospective development, production, and tonnage of the areas to be served, are sufficient to warrant the conclusion that not all the proposed lines should be built. Construction of the proposed Santa Fe branches and extension and of that part of the Denver's proposed line below the Cap Rock would furnish convenient rail facilities for local service to all those areas involved, now remote from railroads, except the areas between Seymour and Paducah and the area in New Mexico. A short branch line from the Santa Fe or the Rock Island would give convenient local facilities to the area in New Mexico. The Denver's proposed lines would serve locally all

the territory involved except the areas last mentioned and the area east and southeast of Floydada that would be served by either the Quanah extension or the Floydada extension. Excluding this last area, the T. P. & G. would serve all those areas that are now remote from railroads. For local service the Floydada extension would be somewhat more convenient for most of the territory that would be tributary to it than would the proposed Quanah extension. The latter, however, would be equally convenient for a large part of the territory and in addition would serve more conveniently a large territory in eastern Floyd County that would not be served by the Floydada extension. The expenditure required to construct the proposed Santa Fe branches and that part of the Denver's proposed line below the Cap Rock would be $2,631,351 less than the estimated cost of the Denver's proposed lines and $5,538,279 less than the estimated cost of the line and equipment of the T. P. & G. The estimated cost of the Floydada extension is $523,171 less than that of the Quanah extension. Justification for the greater expenditure proposed by the T. P. & G., the Denver, and the Quanah must be found in the need for competitive service, a more direct route from the Plain to the east and southeast, or something other than facilities to serve the territory locally.

The facts of record warrant the conclusion that a line such as is proposed by the T. P. & G., the Denver, or the Quanah, opening a more direct and practicable route from the Plain to Fort Worth, Dallas and other points to the east and southeast would greatly promote the feeding of cattle, most of which, as fat cattle, would be shipped to Fort Worth; would tend to increase the feeding of hogs for the Fort Worth market where, other things being equal, it should be more economical to pack meat for Texas consumption than at points farther north; would be of some advantage to the mills of northern and central Texas for the movement of grain, resulting in increased competition for grain grown in the Plain and possibly some benefit to the producer and consumer; would be of some advantage for quicker movement of green grain to Fort Worth; would make the storage facilities at Fort Worth more accessible during times of congestion at Galveston; would possibly stimulate the development of irrigation by making more accessible nearby markets for vegetables; would give better passenger, mail, and express service than is possible under existing conditions; and would give the people of the Plain more convenient access to nearby markets for supplies. It would result in little, if any, benefit to the cotton industry of the Plain except in making more accessible sources of supplies for those engaged in the industry. The benefits to result to the grain industry would probably be more than offset by the loss of economy due to grain dealers forcing grain through Fort Worth on circuitous routes. The Plain would no doubt be greatly benefited and its development would be stimulated by the competitive service which such a line would afford.

While one of the purposes of the provisions of paragraphs (18) to (21), inclusive, of section 1 of the interstate commerce act is to protect existing carriers against unnecessary and wasteful competition by rival carriers, it was clearly not the intention of Congress by these provisions to put a stop to all competitive railroad building. The intention to preserve competition in rail transportation is manifest in numerous provisions of the act. Competition such as would result from building a more direct line from the Plain to the east and southeast is not the kind the provisions of paragraphs (18) to (21) are intended to prevent. Such a line would not be a mere duplication of the Santa Fe's lines. It could perform many transportation functions much more economically than they are being, and probably could be, performed by existing lines. None of the lines proposed by the Santa Fe's rivals would parallel any of its lines to any great extent. While the Santa Fe proposes presently, or as the needs of the country require, to build into those areas in the Plain now remote from a railroad, and has indicated a willingness to construct a direct line to Fort Worth if such a line is needed, and while the lines which it might build would probably in some respects be superior to those proposed, some weight should be given to the advantages of competitive service to the principal rail centers of the Plain.

The evidence indicates that the traffic of the Plain would be sufficient to support a more direct line to the east and southeast, and that the loss of traffic by the existing lines through the construction of such competing line would not impair their ability to serve the public. Under all the circumstances it appears that the public convenience and necessity require the construction of a more direct line from the Plain to the south and southeast. Three of the applicants now before us propose to provide such a line.

The project of the T. P. & G. would serve a greater area remote from railroad than the project of any of the other applicants. Public convenience and necessity would not require the construction of the T. P. & G. to serve locally those areas between Paducah and Friona if the Denver's proposed lines, or the Santa Fe's proposed branches and the part of the Denver's proposed lines below the Cap Rock, should be constructed. As has been noted above, it is not shown that there is need of additional rail facilities for local service in those areas east of Paducah, and, while there is some evidence to support the claim that there is need for additional rail facilities for local service in the area west of Friona, the need could be met at much less cost than is proposed by the T. P. & G. by constructing a short branch line from one of the existing railroads bounding that area. An examination of distances will show that the line proposed by the T. P. & G. would bring a larger area closer to Fort Worth via both single-line and joint-line routes than the proposed lines of either the Denver or the Quanah, and that both the line proposed by the T. P. & G. and the lines proposed by the Denver would be superior to the Quanah, in this respect. Neither the T. P. & G. nor the Quanah would serve directly either Lubbock or Plainview, the principal centers of the east central part of the Plain. The T. P. & G. would afford a direct outlet to Fort Worth from Knox, Baylor, King, Cottle, and Parmer Counties, Tex., and Curry and Quay Counties, N. Mex. None of the other proposed lines would open a direct route from these counties. The record shows, however, that a more direct outlet from these counties to Fort Worth is of less importance than such an outlet from Lubbock, Plainview and the country around those cities. The T. P. & G. would also give a shorter and more direct route from a source of coal supply on joint-line routes, to a large part of the south and central Plain and to a limited area east of the Cap Rock, and tend to reduce the cost of coal at the point of rail delivery. The chief benefit from the railroad as a coal carrier, however, would be the reduction of trucking charges on coal used in those areas of the tributary territory now remote from a railroad. The other lines proposed would accomplish this result for the areas which they would serve.

The T. P. & G. would give competitive service to large areas around Tucumcari, Friona, Tulis, Paducah, and Truscott; the Denver to large areas around Plainview, Lockney, and Lubbock, and to a limited area west of Plainview; and the Quanah only to the territory around Floydada. Construction of the line proposed by the T. P. & G. would utilize and strengthen the Gulf, but would divert from the Quanah considerable traffic that it can not well afford to lose. It would also divert some traffic from the Orient, but not enough to seriously affect it. Extension of the Quanah's line to Floydada would increase its earnings and probably enable it to improve its service. The line proposed by the T. P. & G., the Denver's lines, or the Quanah extension would divert traffic from the Santa Fe, but the development that would follow the construction of any of the lines would probably more than offset the losses from the traffic diverted.

The cost of constructing the line proposed by the T. P. & G. would probably be much more than the applicant's estimate. The line might easily cost as much as the Denver has estimated, or it might be so built as to come within the applicant's estimate, except as to interest during construction. It seems probable, however, that it would cost at least $9,000,000 to build the line and there would be no real economy in building it for less, if it could realize approximately the traffic estimated by the applicant. On all the evidence it seems reasonable to conclude that the initial cost of building and equipping the proposed line would be about $12,000,000. The evidence indicates that the estimates of the T. P. & G. as to its probable traffic and revenue are too high. The showing of the T. P. & G. is insufficient to convince us that its proposed railroad would be able to earn its fixed charges during the first five years of operation.

The estimates of the Denver and the Quanah covering the cost of their respective projects appear to be reasonable. Their estimates of traffic and revenue are probably too sanguine. Development of the territory to be served should ultimately justify the additional investment proposed by the Denver. The traffic the Quanah is likely to get would hardly seem to warrant the investment proposed, but might do so in view of the effect on the rest of the line, which appears to earn a fair return in a country that averages no better, probably worse, than that to be traversed by the proposed extension.

The Denver and the Quanah are prepared to finance their projects and to carry the burden of the investment through lean years that are likely to be experienced following completion of construction. The Denver's lines are to cost more per mile and would probably be superior in physical characteristics to the line proposed by the T. P. & G. Both the Denver and the Quanah would have better grades against westbound traffic. The ability of the T. P. & G. to finance its project is very doubtful. A long time has elapsed since its application was made and the record shows little progress in getting subscriptions to the preferred stock. The plan of financing proposed would put a very heavy fixed charge on the property which it probably could not carry in the early years of operation.

A plan for bringing the service of the T. P. & G. to the principal commercial centers of the South Plains and for its proper financing and operation was suggested in the proposed reports. The plan contemplates the utilization of the Gulf and

of part of the Quanah's line, extended as proposed, the construction of a line from Floydada to Lubbock, and of a line from Floydada to Plainview in the event trackage rights can not be secured over the Floydada branch, and the sale of the promoters' interests in the T. P. & G. to one of the major carriers, other than the Denver or the Santa Fe, with which connection would be made. The plan is opposed by the Quanah and is not entirely acceptable to the T. P. & G., which suggests certain changes. None of the major carriers mentioned in the plan have manifested any interest in it, and its approval would result in considerable delay in the provision of rail facilities for which the record shows there is urgent need.

The brief of the state of Texas supports the application of the Denver regardless of what disposition may be made of the applications of the Santa Fe or the T. P. & G. It points out that the Denver's lines would give the South Plains one-system service to Colorado and, by connection with the Burlington and its two controlling systems, one-system connection with the entire northwest and claims that construction of the lines would benefit the whole state of Texas. Other reasons given by the state for granting the Denver's application are in substance urged by the Denver and the South Plains Committee and have been noted above.

Upon the facts presented we find that the present and future public convenience and necessity require the construction by the Fort Worth & Denver South Plains of the lines of railroad described in the application in No. 4769 and subsequently modified as stated therein, one extending from Estelline through Plainview to Dimmitt, and the other from Silverton to Lubbock, and construction by the Quanah, Acme & Pacific of the extension from McBain to Floydada described in the application in No. 4959; but do not require and will not require the construction by the Texas, Panhandle & Gulf of the lines of railroad described in the application in No. 3134, or the construction by the Pecos & Northern Texas of any of the lines of railroad described in Nos. 4747, 4756 and 5372.

The application of the T. P. & G. and the applications of the Pecos in Nos. 4747 and 4756 will be denied without prejudice to renewal should the Denver fail to complete its proposed lines to Dimmitt and Silverton on or before December 31, 1929, and the application of the Pecos in No. 5273 will be denied without prejudice to its renewal should the Quanah fail to complete its proposed extension to Floydada on or before December 31, 1928. Appropriate certificates and orders will be entered.

Relation of Transportation to Electrical Development

A NUMEBR of prophecies concerning future railroad development were made in three papers presented before the New York Railroad Club on November 19. The subject of the meeting was "The relation of transportation to electrical development." The first speaker was F. Darlington, assistant to vice-president, Westinghouse Electric & Manufacturing Company. High points of Mr. Darlington's talk are included in the following:

Production is dependent on electric power and on transportation. The output of the farm worker is five times as much as it was two generations ago and the percentage of farm population to total population has greatly decreased. Standardization in manufacture is permitting the manufacture of constituent parts of single machines in small communities with the advantage that workmen are being removed from congested cities. Factory location is now almost independent of sources of power supply. These factors are all working for redistribution of population.

Neither power nor railroad facilities should be duplicated in a given locality for sake of creating competition. Regulation is therefore necessary. Service, however, should be paid for out of earnings in both industries as anything that disturbs the even working of supply and demand tends to cause unbalance and to reduce material welfare. Power facilities require interconnection and different kinds of transportation need to be co-ordinated. Power facilities and transportation facilities likewise need to be co-ordinated because new accomplishments of either will greatly change the demands on the other.

J. P. Jackson, assistant to vice-president, New York Edison Company, was the second speaker. Points of special interest in Mr. Jackson's remarks are contained in the following:

The poorest people in the United States now enjoy more comforts than many princes of pre-power days before the advent of steam railroads and electric power. Each worker now has an average of nearly four horse power at his demand.

Good transportation preceded effective transmission of power and developments of the past resulted in the growths of large centers of population with large specialized industries. Automobiles now have a tendency to distribute populations and standardization of parts is making it possible for comparatively small factories to be set up in small towns for shipment to central assembly plants. This movement is facilitated by extensive power transmission systems which provide cheap and abundant power to outlying communities. Farm products are now more fully prepared for consumption than previously and this is work which can be performed most advantageously in rural towns. Great commercial cities on seaports and lakes will undoubtedly continue to be large centers of population, but conditions outlined will promote growth of smaller cities.

Decentralization of industries with diversified manufacture made possible with distributed electric power will do much to iron out the ups and downs of centralized industry and will promote greater prosperity, better living conditions and less periodic hardships in certain localities. Should these tendencies develop as indicated the load on the railroads will be substantially modified. Modification in this case, however, need not mean reduction, as there is every reason for believing that the changes will result in a better load on tracks and a reduction in the acuteness of peaks of transportation.

J. C. Parker, vice president in charge of engineering, Brooklyn Edison Company, substantiated and enlarged upon the expressions of the two preceding speakers and concluded as follows:

"If the developments of electric power supply cannot and are not made flexibly and promptly whenever social pressure demands decentralization of industry and of population or the deflection of industry to the places economically most logical, there is bound to be war between the demands of society and the failures of my industry to save those demands. Of such failure I think there is little historic warrant to hold any fear so long as the conditions under which our young industry has operated in the past two score years continue. Similarly, if electricity supply makes possible the expression of social and economic desires, transportation must sensitively feel those desires and be allowed freely and flexibly to provide for them.

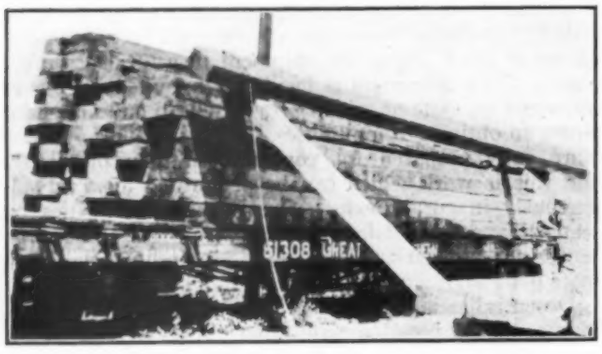
"Again I have no fears in the matter of internal flexibility—the broad vision, the statesmanlike imagination, and the courage of the pioneers who have made our American railroad systems, are not lacking in their sons. Clearly, the freedom from unnecessarily restrictive legislation and ability freely to finance for economic change are essential to the roads and to the electric utilities alike.

"When, where and how these needs will arise neither you, I, or any man, can predict. All that can be said is that broad foresight, flexibility of development so that our systems may adapt themselves to change in social subject to the major social interests, are essential, while any artificial disturbance of the niceties of a proper economic balance will be woefully bad, not for the industries affected, but for the economic, spiritual and mental welfare of the American nation."

Improvised Jib Crane Saves Store Forces Money

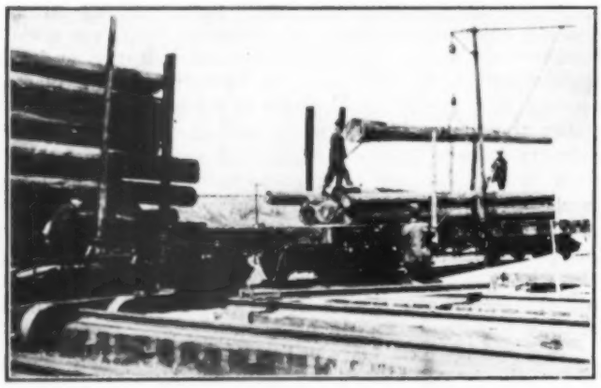
TO meet a situation on the Great Northern at Minot, N. D., where the store department forces were badly in need of power for loading piling and rails, but did not have sufficient work of this character to warrant the purchase of a derrick, a hoisting outfit was improvised which both expedites the work and effects a payroll saving of from $300 to $400 a season.

The outfit comprises a hoisting crab, a jin pole and a



The Jib Crane Makes Quick Work of Car Sills

five-horsepower Woolery section motor car. The hoisting crab consists simply of a steel drum upon which a cable can be wound, and a second shaft carrying a drive pulley. This machinery is attached to the end of a timber frame which will lie on the floor boards of the motor car where it can be moved from place to place and also utilize the power of the motor car for hoisting. The crab is fastened to the car by means of ⅞-in. U-bolts and the transmission of power to the hoisting crab is accomplished by a belt which is applied to the 5-in.



Loading Cedar Piling from Material Yard Skids to Car with Jib Crane—Note Method of Slewing the Crane Arm

pulley on the motor car and the 12-in. pulley on the crab after the regular motor car belt for driving the car has been removed.

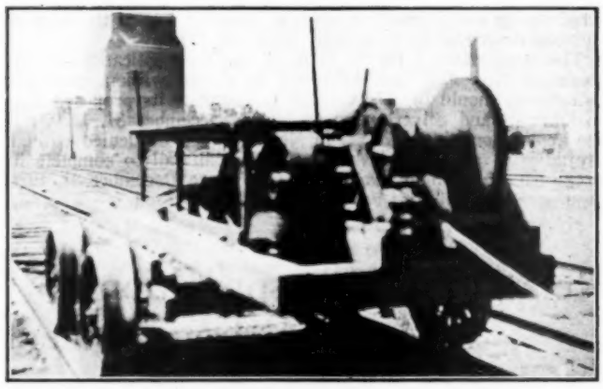
The jin pole consists of a piece of gas pipe 3½ in. in diameter and 19 ft. long, over the lower end of which a piece of gas pipe 4 in. in diameter and 12 ft. long is slipped for purposes of reinforcement. At the top of the jin pole is an arm of ¾-in. by 2-in. iron. This arm rests on clamps attached to the pipe so that it can revolve readily when a rope attached to one end of the arm is pulled by a man on the ground.

The operation of hoisting consists of inserting the jin pole through one of the side brackets on the flat car to be loaded or unloaded and blocking the motor car a safe distance from the site of work. The load is then raised by means of 150 ft. of ⅜-in. wire rope, extending from the drum of the hoisting crab over tackle blocks at the base of the jin pole and up over tackle blocks hanging from the outer end of the jin pole arm.

The jin pole weighs approximately 350 lb., and the hoisting crab, including the frame, weighs 320 lb., which is easily within the loading limts of the five-horsepower Woolery motor car that furnishes the power. The crab will lift about 1,000 lb. It is equipped with a hand brake sufficiently strong to enable the operator to hold the load at any angle if the engine should stop. As a result, the danger of accident in the use of this equipment is remote.

Three Men Do the Work of Six

The device is used for loading cedar piling, rail, timber, etc. Since developing it, it has been possible to accomplish more work of this character with four men than was formerly done with six or seven men and to do it faster. The cost of operation is about $18 a day with a crew consisting of a store foreman and four laborers, while the saving varies from $12 to $15 per



The Motor Car with the Hoisting Crab Frame in Place on the Floor Boards

day, depending upon the amount and weight of material loaded. In one instance, three men using this equipment loaded 11 pieces of 36-in. oval concrete pipe in eight hours, a class of work which three men could not have handled by themselves. In this case the cost of loading was $11.65 for labor and $0.25 for gasoline, or a total of $11.90.

Saving in Payroll

During 1925, 35 cars of timber and piling were handled at this point to meet the requirements of the division. It is estimated that an aggregate payroll saving of from $300 to $400 is made possible by the outfit, which cost only $75 to build, counting the cost of the hoisting crab, cable and pipe for the jin pole, but not including the motor car, which is released for other work when material is not being loaded. The only requirement in this case is the removal of the hoisting crab from the car body.

With the lumber and rail yard about 1½ miles apart at this point, the convenience with which it is possible to move from one yard to another during the busy season is also an attractive feature of the outfit, which was developed by A. W. Nelson, division storekeeper at Minot, N. D.

Passenger Train Operation Without the Use of Angle Cocks*

Preliminary tests and general service on the Pennsylvania demonstrate practicability

By W. H. Sitterly
General Car Inspector, Pennsylvania, Buffalo, N. Y.

SEVERAL years ago, the management of the Pennsylvania became satisfied that the angle cock could be eliminated from passenger equipment without detriment to the service, in so far as increasing the time required in switching passenger trains is concerned, and outlined a test at Harrisburg, Pa., where a large percentage of the trains operating through that point are broken up. The test was satisfactory, as it developed that no more time was required to switch a train without the use of angle cocks than with them. Recently the same test was made simultaneously at all passenger terminals on the Pennsylvania Railroad with about the same success as was obtained at the first test at Harrisburg.

The Train Brake and Signal Committee of the American Railway Association, Mechanical Division, became interested and conducted a series of tests at terminals on various railroads in the United States.

Early in August our management decided to eliminate the angle cock by locking the handle in the open position, the brake pipe being closed at the rear of the train by attaching the hose to the dummy coupling provided for that purpose. The date set for this operation to begin was 12:01 A. M., October 1, instructions being given that all angle cocks should be locked in the open position within a period of 72 hr. after that date. All railroads with which passenger equipment cars are interchanged were notified of the effective date of locking angle cocks on all passenger equipment cars. On the Northern division, the New York Central heartily co-operated with us in this operation, both at Exchange Street Station, Buffalo, and at Erie, Pa.

Method of Preparing Cars

Before going into the supplementary instructions to train service employees in the handling of trains of cars with the angle cocks open, locked in the open position, I might say that the operation was a very simple one. A lock was stamped out of sheet steel. The small orifice is intended to go up over the angle cock handle to keep it from being raised by train service employees. In locking the angle cock handle, it has to be raised before it can be placed in the closed position. The large orifice, after this clamp was placed over the handle of an angle cock, registered with the opening in the angle cock, then the hose, or hose extension nipple used with a type "D" coupler, was applied. This absolutely locks the angle cock in the open position. Presumably instructions will be issued at some time in the near future that when our passenger train equipment goes through the shop for repairs, the angle cocks are to be removed. There will be no loss, because all angle cocks used on passenger cars are bushed from 1¼ in. to 1 in. The only thing necessary is to remove the bushings which will make them available for freight equipment cars. The brake pipe at the end of the train is closed by coupling the dummy coupler into the hose coupling. That is the only interruption from the head end of the train to the rear end.

Supplementary instructions to the Air Brake and Train Air Signal Instruction Book 99-A-1 for attaching and detaching locomotives or cars in passenger train service without the use of brake pipe angle cock, for the guidance of employees who are engaged in the maintenance or operation of locomotives or cars in passenger train service, were issued under date of August 9, 1926, and are as follows:

Instructions for Attaching and Detaching Locomotives or Cars in Passenger Trains

The angle cock handles on all locomotive tenders and cars used in passenger train service will be securely clamped in the Open position, except those on shifting locomotives. The brake pipe stop cocks on the front end of all locomotives will not be modified and may be used as at present.

A—When Trains Are Not Broken Up and Change of Road Locomotive Only is Required

Arriving Train—After stop is made, engineman will make a service brake application of 25 lb., after which he will place the brake valve in emergency position, and leave it there until a signal is received for a release. The air brake hose shall then be parted between locomotive tender and car. The air brake hose coupler on the locomotive tender will then be placed in the dummy coupling, after which a signal should be given to the engineman for a release of the brake. The engine will be cut off in the usual way.

Departing Train—After the road engine is coupled to the train, the engineman will make a service brake application of 25 lb., after which he will place the brake valve in emergency position, and leave it there until a signal is received for a release. The inspector will then remove the hose from the dummy coupling on the locomotive tender, and unite it with the hose coupler on the first car in the train, and then signal the engineman to release the brake, except in cases where a change is to be made in the make-up of the train by a shifting locomotive from the rear. The engineman in charge of the road locomotive must not release the train brakes until the shifting has been completed. The usual air brake tests will then be made after the brake system has been charged to at least 70 lb.

B—When Trains Are Broken Up With No Change of Road Locomotives

Arriving Train—After stop is made, engineman will make a service brake application of 25 lb., after which he will place the brake valve in emergency position, and leave it there until all shifting movements have been completed. The engine and tender brakes may be released, if necessary, by the use of the independent brake valve.

Switching Road Train—All switching of cars should be controlled by the air brake. The air brake hose on the rear of the rear car (furthermost from the locomotive) in draft shall be coupled to either the dummy coupling on the car or the back up hose. After the shifting engine has coupled to the train and the hose coupler united, the trainman will open the

*Abstract of a paper presented at the October 14 meeting of the Central Railway Club, Buffalo, N. Y.

angle or stop cock on the shifting locomotive to release the air brakes on the cars in the train.

When setting off or picking up cars in a train that is being shifted, it will be necessary for the engineman on the shifting locomotive to make a service brake application of 25 lb., after which he will place the brake valve in emergency and leave it there until he receives a signal for a release of the brakes. The trainmen or inspectors will separate the air brake hose couplers where separation is to be made in the train, and couple them to the dummy couplings or standard back-up hose before signaling for a release of the brakes.

When shifting trains without the use of angle cocks, it will be necessary to deplete the brake pipe pressure before any separation can be made, which should be done by making a service application of 25 lb., after which the brake valve should be placed in emergency position until a signal is received to release the brakes. Dummy couplings which are standard for all passenger locomotives and cars, or the standard back-up hose and alarm whistle must be used for closing communication between the brake pipe and atmosphere when making train movements.

The speed of trains while shifting, should be controlled by the air brake, and in no case should shifting or road movements be made unless the brake system is charged to at least 70 lb.

Handling the Trains in Service

It was my privilege to witness the operation at our passenger car storage yard on the morning of October 1. Our trains arrive and depart from the New York Central station at Buffalo, making it necessary to back them into the station. The movement of the train, so far as the brakes are concerned, is controlled by a pilot on the rear end. Our instructions to enginemen are to lap the brake valve whenever they are approaching a tower or a point where a stop is liable to be made, thereby placing in the hands of the pilot an opportunity to make whatever reduction in the brake pipe he desires without having the air blowing from the main reservoir into the brake pipe as fast as he is trying to draw it down.

On the trains I noticed on that particular morning the pilot came down through the yard and hung the back-up hose on the gate of the Pullman car after which he got up on the platform. He gave six blasts of the communicating signal to the engineman to deplete the brake pipe pressure so that he could couple up the back-up hose.

Immediately after the brake pipe was depleted he stepped down, connected up his back-up hose, and then gave the engineman a signal to release the brakes. After that was done the pilot followed further instructions that he must make a test of the brakes before he leaves the empty car yard, to know that he has control of the brakes from the rear end of the train, and after he was satisfied that the brake system was recharged, he gave the engineman the usual signal to lap his brake valve and applied the brakes by the use of the back-up hose. He then got down on the ground, went over the train as far as the engine to see that all brakes were applied, came back and gave the engineman a signal to release the brakes.

I do not know of any cases where we have had any delays to our passenger trains. I was on a train the other day coming in from Emporium, Pa., which picked up a milk car at Lime Lake. The engineman made a service application, depleted the brake pipe, picked up the car, came out and got away in the same time as when I rode a train when they were using the angle cock —they did not have two angle cocks to close.

For the benefit of the car men, I may state that we have found a number of dummy couplings leaking. We corrected this by making a socket to fit over the dummy coupling, applying to it a piece of emery cloth and rotating this over the face of the dummy coupling a few times, cleaning the surface, with the result that it was absolutely tight.

Pacific Railway Club Associate Members' Night

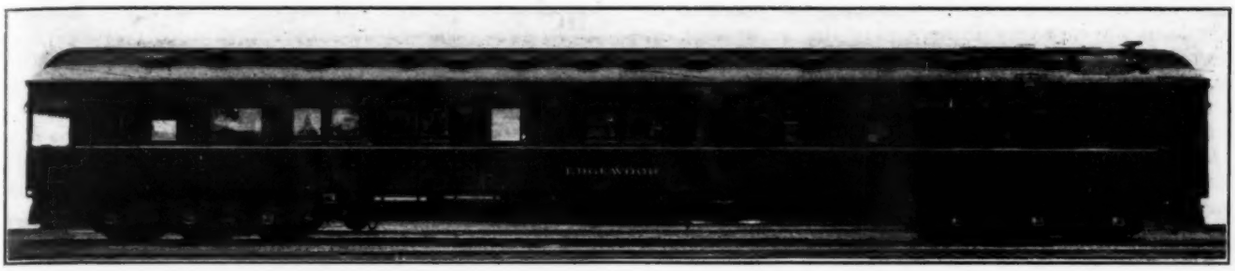
THE Pacific Railway Club held an unusual meeting at the Palace Hotel, San Francisco, Cal., on November 10. Following a practice inaugurated last year, the arrangement of the program for this meeting was placed in the hands of a committee of associate members of which Douglas W. Dodge, Pacific Coast representative of the Clark Car Company and the J. G. Brill Company, was chairman.

Invitations were extended to a large number of associate members to present five-minute talks on topics to be selected by themselves, and 22 availed themselves of this opportunity. Practically all of the addresses were educational in nature, dealing largely with the utilitarian side of new and important devices used by the railroads. Two experiments were conducted at the meeting, the first being a novelty demonstration with liquid air and the other a demonstration of the use of the thermo-ionic tube.

An informal dinner preceded the meeting at which 41 members and guests were present, while about 150 were present at the meeting. The speakers and their subjects were as follows: H. F. Donahue, H. S. Crocker Company, "Railway Printers Since 1856"; B. G. Marshall, California Corrugated Culvert Company, "Perforated Culverts"; Mark Noble, Baldwin Locomotive Works, "A New Locomotive Firebox"; D. J. Williams, Air Reduction Sales Company, "Liquid Air"; William Aldrich, Metal & Thermit Company, "The Young Man in the Supply Business"; A. V. Thompson, General Electric Company, "The Aeroplane Carrier-U. S. S. Lexington"; E. H. Baker, Pennzoil Company, "Railway Supply Service"; E. T. Carr, Edward R. Bacon Company, "Industrial Railways"; R. B. Plass, Westinghouse Electric & Mfg. Company, "Thermo-ionic Theory"; Harry E. Steuard, Colorado Fuel & Iron Company, "Nails"; Samuel W. Hilt, Midvale Company, "Advance in Manufacture of Railroad Forgings"; Horace Clark, Westinghouse Airbrake Company, "Automotive Brakes"; Robert W. Jamison, Robert W. Jamison Company, "Alumino-thermic Welding"; H. W. Renick, Magnetic Signal Company, "Grade Crossing Protection"; George Skipton, Westinghouse Electric & Mfg. Company, "Arc Welding of Steel Frame Buildings"; W. D. Otter, Bradford Corporation, "The Efficiency of Draft Gear Performance"; A. S. Lindstrom, A. S. Lindstrom Company, "Lifting Magnets"; George Crandall, Mahr Manufacturing Company, "Our New Line"; W. E. Corrigan, American Locomotive Company, "Three Cylinder Locomotives"; E. L. Woodward, *Railway Age*, "Contributions of Supply Industries to Better Railroading"; and William G. Tawse, Superheater Company, "Associate Membership."

At the completion of his address, Mr. Tawse handed the president of the club with 51 applications for membership that had been secured by the associate members, bringing the total membership to 826. The Pacific Railway Club is striving to have not less than 1,000 members upon the completion of its tenth year in March, 1927, and is making enviable progress towards that goal.

THE RAILWAY CLUB OF PITTSBURGH will hold its regular meeting at Fort Pitt Hotel on Monday evening, November 29. The subject before the meeting will be management problems, with an address by E. S. McClelland, director of personnel of the Westinghouse Electric & Manufacturing Company.

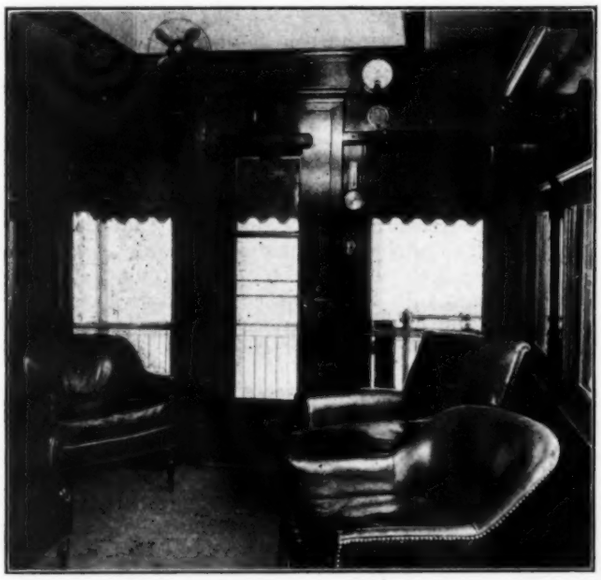


Private Car Edgewood Built for Major Max Fleischmann, President of the Fleischmann Yeast Company, by Hotchkiss Blue & Co., Ltd.

Private Car Has New Heating and Ventilation Features

Modern all-steel car also designed to provide maximum comfort, convenience and safety

AN all-steel private car for Major Max Fleischmann, president of the Fleischmann Yeast Company, has been designed and constructed recently by Hotchkiss, Blue & Company, Ltd., Chicago, embodying thoroughly-tested features in modern car construction

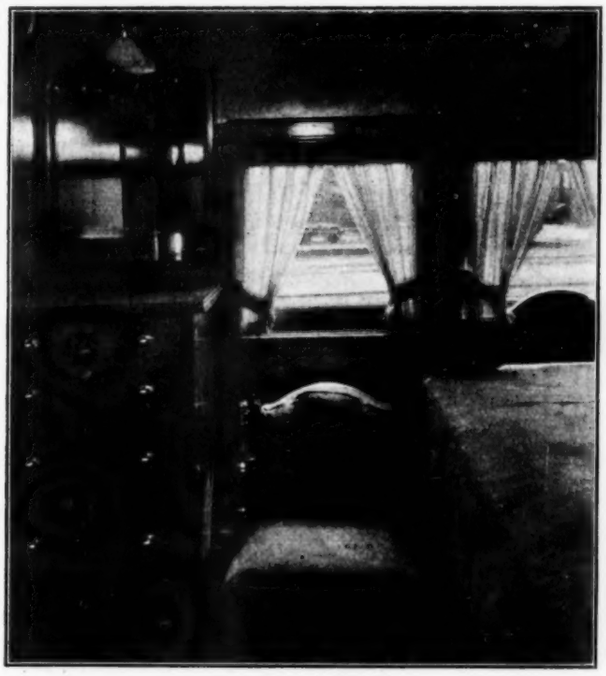


Observation Room with Special Equipment for Recording Altitude, Speed and Temperatures

and conforming in all important details to approved railroad standards. The car is notable for the simplicity and beauty of its interior finish and appointments, as well as for the great care taken in every detail to assure the maximum comfort, convenience and safety of passengers. This is especially evident in the arrangements for heating and ventilation.

Car Body Strongly Constructed

The car weighs 180,000 lb. and has a total length over the buffer castings of 82 ft. 5¾ in. Steel construction is used throughout, deep center sills with a cross-sectional area of 58.5 sq. in., being used in conjunction with Commonwealth cast steel end-frames and combined platform and double body bolsters. Connections are provided between these parts of sufficient proportions to develop the full transverse strength of the end frames, the whole providing a powerful shock absorbing element, designed to prevent the telescoping of one car with another. The car body is designed for rigidity and high



The Owner's Bedroom

torsional resistance with adequate strength to carry the load and prevent collapse or crushing in case of a wreck.

The roof is of the double-deck type which lends itself to the desired lighting, ventilation and decorative effects.

The construction of the floor affords an excellent example of the care used in insulating the car against heat and cold. Heavy galvanized steel plates are laid over and secured to the underframe of the car, wood stringers being placed on these plates and bolted through the underframe. Two layers of Johns-Manville ¾-in. Hairinsul are then applied between the stringers, and two courses of wood flooring laid on top, the latter being placed diagonally to the underframe and to each other with insulating paper between. On top of the flooring is spread a heavy layer of special red cement laid on galvanized wire netting. Three-ply Salamander insulation is used on side walls, end walls, upper, lower and transom decks of the car.

Interior Finish Highly Attractive

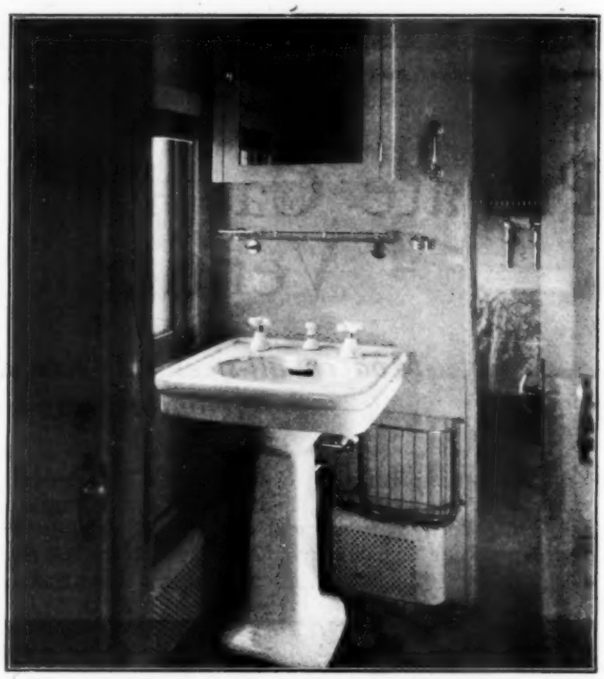
The design of the interior finish throughout was given much time and study by engineers and an interior decorator so that simplicity and beauty would be obtained. The bedrooms, bathroom, office, observation room and corridor are finished in wood particularly selected for the purpose. Where not decorated in color, selected straight-grained mahogany is used, cut from one log to give uniformity in texture, color and appearance. Wall panels are constructed of specially made veneer with chestnut cores to avoid the possibility of splitting. The use of heavy aluminum sheets for the ceiling obviates trouble from deformation and splitting, etc., which might otherwise occur and detract from the beauty of the interior finish. All partitions at the floor are set in rubber and cotton flannel strips. All doors throughout are of mahogany except where steel doors are required for fire protection. All hinges, locks, railings and rods are of oxidized bronze, the lamp fixtures and other trimmings furnished by Adams & Westlake being designed and finished in keeping with the various rooms. O. M. Edwards trap doors and window fixtures are used. The Railway Curtain Company furnished window curtains and rollers and the Crane Company, Watrous Company and Duner Company the bathroom accessories.

Particular attention was given to the design of furniture throughout the car, beds, tables, dressers, chairs, couches and seats being chosen for beauty and utility.

Heating and Ventilation

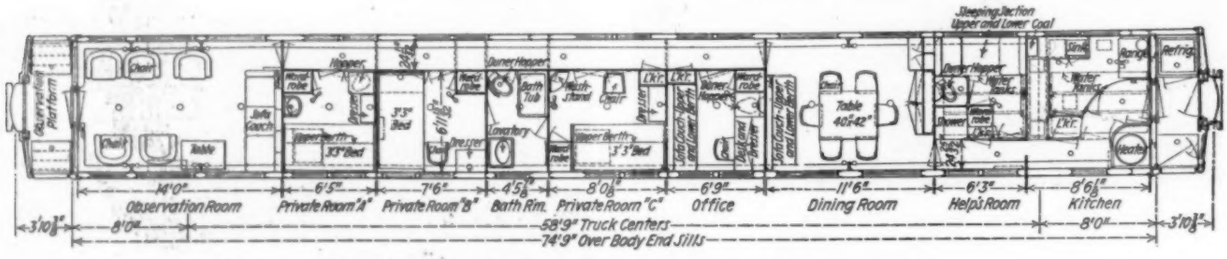
In order to assure comfort for the car occupants in cold climates under all conditions. dual independent heating systems are provided in addition to special care in insulating the car. The Vapor system is furnished by the Vapor Car Heating Company, and the second emergency unit is a hot water system, consisting of a double coil coal burning steel heater and the necessary piping. There is no connection between the vapor system and the hot water system except the proximity of the pipes of the two systems, both inside and outside of the car, to keep the hot water pipes from freezing when the heater is not in use. Arrangements have been made in all of the rooms so that the temperature may be regulated by turning on or off one or more sections of the vapor coils as required without affecting the temperature in any of the other rooms. This may be done by the occupant without leaving his seat or bed. The steam train line is equipped with Barco flexible metallic joints.

A careful study was made to provide adequate ventila-



The Bathroom—View Shows Perforated Metal Protection for the Heater Pipes—Heater Control Handles Seen Through the Open Door to the Owner's Bedroom

tion during any period of the year or under any climatic condition. The ventilation of the living quarters, sleeping rooms and kitchen are treated separately, appliances being provided to supply fresh air and remove foul air. This has been fully accomplished in certain locations in the car by the use of Garland ventilators with natural exhaust action; in others, by positive or forced ventila-



The Floor Plan Arrangement of the Private Car Edgewood

tion. Should the natural ventilation prove inadequate, as, for example, when the car is passing through a tunnel or sand storm, the room can be completely closed, and, by pushing a button, a motor-driven exhaust fan will clear the air in the room in three minutes. In the owner's bedroom a motor driven pressure fan connected to centrifugal air cleaners is used to bring in pure clean air from the outside. This is in addition to the motor-driven exhaust fan also installed in this room. It is be-

lieved by the builders that the use of cleaned air before its entrance into a passenger car has never been employed before.

Ample Water Tanks Provided

An adequate water supply is provided, the main water tank for general use being located under the car. The tank is well insulated and arranged so as to avoid freezing during the winter season. Air pressure forces a supply to the faucets in all rooms, stoves, waterbacks, etc. Overhead copper tanks of large capacity are installed in the kitchen and help's room. The car has been designed to meet so far as possible every known contingency; for example, should the car be located where air pressure is not available, a hand air pump located under the car will enable air pressure to be developed in the water tank and thus continue the water system in service.

The car is lighted by electricity from a Safety Car Heating and Lighting Co.'s 4-kw. body hung axle generator. This company also furnishes the 12-circuit switchboard and fan speed controls. Two sets of Edison 375 ampere-hour storage batteries are employed. All car lighting fixtures within the car are carefully selected to harmonize with the various rooms and corridor and the arrangement of ceiling, sidelights, etc., is such as to give adequate lighting throughout.

The observation room has, in addition to the usual equipment, a speed recording gage, altimeter, inside and outside temperature registering thermometer, telephone and clock. In this room has been installed another innovation in the form of a reflecting mirror mounted on each side of the car on the outside and connected by a shaft and hand wheel to the interior so that without moving from their chairs the occupants may bring the mirrors to any desired angle within a half circle and obtain a view of the head end of the train, roadbed or scenery.

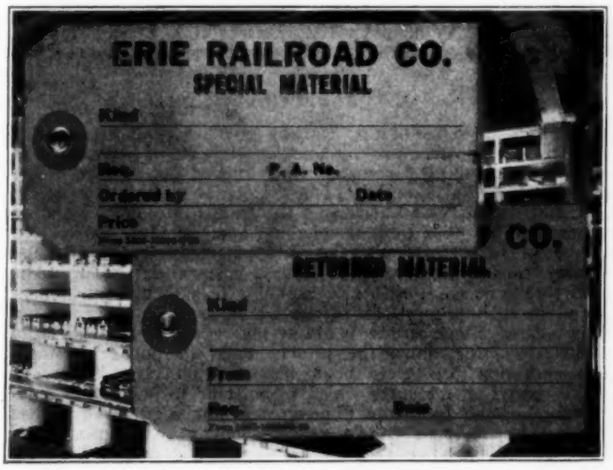
Six-wheel trucks are used, the truck frames and pedestals being incorporated in single steel castings, furnished by the Commonwealth Steel Company. Each has a wheel base of 11 ft., 36-in. steel wheels, 5 1-2 in. by 10-in. journals and American Steel Foundry clasp brakes. Miner safety bolster locking pins are used instead of safety chains and the high capacity draft gears and buffers for the car are also furnished by W. H. Miner, Inc. Westinghouse air brake equipment with the U-12 universal valve and the two 16-in. by 12-in. cylinders, slotted crossheads and Type J slack adjusters are employed.

Tags Help Erie Control Supplies

CONFRONTED with the problem of improving upon its methods of handling special and slow-moving stocks of material, the Erie supply forces have enlarged upon the typical practice in this branch of work by developing a scheme of placarding such material with blue and red tags. The arrangement provides that a blue tag shall be attached to all special material ordered by the maintenance and mechanical departments, as, for instance, material for modernizing a locomotive or for carrying out a program for supplies of a type not normally carried in stock. It is also provided that blue tags be attached to all large castings and other similar slow-moving materials, such as truck bolsters, locomotive cylinders, deck castings, draw castings, wheel centers, truck sides and underframes, etc., that have been in stock at assembling or authorized stock points beyond a prescribed period.

On the other hand, a red tag is attached to all material that is returned to stock after having been issued to the mechanical or other departments, with the exception of material such as standard bolts, etc., which is in current demand. The red tag not only applies to unused material but also to machinery, etc., which has been retired and charged to the material and supply account, and also to any large or expensive items that are received by the supply department from various divisions.

The tags resemble shipping tags in size and shape, but are made much heavier and are reinforced with fiber and brass at the eyelets to withstand the wear and tear of service on outside platforms and in other exposed places. Each tag calls for slightly different information. The blue tag calls for the description of



Samples of the Tags Used on the Erie—The Tags for Special Material Are Blue and Those for Returned Material Are Red

the material, the number of the requisition under which it was ordered, the number of the purchase order, the name of the person ordering, the date when the material was received at the storehouse in question, and the price shown by the invoice. The red tag calls for the description of the material, the source of the returned material, the requisition number and the date of arrival. The responsibility is placed upon the storekeeper to tag the special and returned material as soon as it is received in his stock, also to fill out the information called for and, in all cases, to apply the tag where it will stand out conspicuously on inspections of the premises.

Tagging of material has been in effect as standard practice at all stores points on the Erie since last April. In the interval that has elapsed, the blue and red tags have come into evidence in a noticeable way. They have not proved objectionable but on the contrary were introduced with the knowledge and approval of mechanical and maintenance officers and have commanded the good will of these departments since. The tags are said to have already demonstrated their effectiveness as stock control measures by speeding up the disposal of tagged material, by avoiding unnecessary accumulations of new stock of a similar character, and also in safeguarding the special material from becoming mixed with other material and used for another purpose. The tags do not take the place of reports which are prepared periodically for the purpose of listing all slow-moving material on the system, but they are important supplements to these reports in handling the problem.

R. B. A. Meeting

THE Railway Business Association at its meeting in New York, November 18, adopted resolutions with respect to railway stock, the position of the Interstate Commerce Commission, regulation of motor vehicles, and other resolutions as reported in the *Railway Age*, page 996, November 20. The resolutions adopted follow in full:

We see with satisfaction the growth of the railways in public esteem. This is partly due to good service. The Shippers' Regional Advisory Boards, dealing with car distribution, have fostered both good service and good will. The wider holding of railway securities has contributed. Many roads have improved their methods of getting closer to the people along their lines. Yet measures tending to break down the roads are pressed and though they may be defeated now they seem assured of stronger support in any season of depression and discontent. Against attacks, present or future, upon a regulatory system designed to maintain rail transportation strong, reliable and progressive, public good will can be made a bulwark of defense.

New Capital for Additions

The task of rehabilitating railway credit is well begun. We urge citizens to steadfast vigilance in support of governmental courses calculated to complete this important process. The roads are bond-heavy. Sale of new stock is restricted to a few of the strongest roads. Even on the basis of fuller use and of competition by other carriers anything approaching a restoration of the previous percentage in traffic increase would overtake railway capacity and require its vast enlargement. The additions should be made with new capital. This should not be borrowed in such proportions to the whole as have prevailed for many years. Stock issues should be numerous enough and large enough to bring down the present ratio of bonds to stock. Transportation rate levels should have that objective in view.

We oppose all measures which would tend to impair the independence of the Interstate Commerce Commission. We oppose regional appointment of Interstate Commerce Commissioners. We oppose legislative rate-making such as is proposed in the Pullman surcharge repeal bills. We favor retention by the Commission of its discretion to grant relief from the long-and-short-haul section.

We reaffirm the view that whatever legislation Congress may adopt affecting railroad unifications should exclude coercive features. The process should respond not to governmental compulsion but to economic needs; and legislation if any should be restricted to the removal of unnecessary obstacles.

Motor Vehicles Laws

Organizations serving the automobile industry have approached the problem of its governmental regulation declaring a spirit of deference to the public interest and of cooperation with other forms of transportation. The Association of Railway Executives has met them in a like spirit. We congratulate them both. We favor reasonable regulation conceived primarily in the public interest. Movement of automobile common carriers and other motor vehicles should be restricted so far as may be necessary to preserve use of the highways to other traffic for which they were built. They should pay for a fair share of the road repairs. Before setting up competition with railroads the projector should be required to obtain a certificate of public convenience from some competent authority which should determine what restrictions and obligations if any upon the newer agency are required to maintain the rail line in vigor and regulate highway transport accordingly. During a formative period we favor regulation of State traffic by the States and of interstate traffic through State officials designated by Congress to administer federal regulation.

Some of those who had brought pressure upon the Interstate Commerce Commission for reductions in rates upon heavy and bulk goods, suggesting compensation through increases on other freight, have postponed their proposals pending further progress in railway unifications. In respect to farm products such pressure continues. The farmer's best friends are those who tell him the truth about his dependence upon transportation and industry. The truth is that rates on farm freight are secondary in importance to service and markets. The railroad problems that most concern farmers are to preserve the carrier so that the goods can reach market promptly and safely and to sustain domestic consumption of agricultural commodities by stabilizing railway buying power, upon which depends the maintenance and growth of industrial community buying power. The Interstate Commerce Commission exercises a national responsibility. Discussion of rate adjustments should proceed in an orderly manner before that body with the same avoidance of agitation outdoors which is accorded the courts.

For Less Regulation

At its long session Congress restricted farm aid to the measure which was favored by the Railway Business Association—creation of a cooperative marketing division in the Department of Agriculture. This is a means of self-help which business men in the general interest can assist in establishing. The country needs not more regulation but less—agricultural, industrial and railroad. In the common interest industry and transportation are studying the farmer's problems. In his own as well as the common interest the farmer is well advised to study the problems of industry and railroads. It should be the joint aim and effort to avoid regulation of agriculture, to foster abstinence from political pressure upon the Interstate Commerce Commission in the regulation of railroads and to encourage a tendency toward relying less on commissions and more on the courts in dealing where necessary with competition in business and industry.

Recent federal income tax readjustments have aggravated the unjust discrimination against corporations. Exemption has been extended to millions of individuals. The tax on individual and partnership incomes has been reduced to a normal rate of 5 per cent. Meanwhile the corporate tax has been raised from 10 per cent to 12 per cent. then to 12½ per cent, next to 13 per cent, and on the business of 1926, if not repealed, to 13½ per cent. Owners of corporations cannot afford to sleep on their rights. They cannot afford to acquiesce in the perpetuation of this discrimination. It will return to plague them. To let it stand without protest will give it a sanction in future years increasingly difficult to break down. For its fiscal year ending June 30, 1927, the treasury estimates that beyond expenses and debt reductions there will be a surplus available for tax relief. It is proposed to deduct in excess of $300,000,000 from the March and June installments payable in 1927 on incomes of 1926.

Views on Taxation

The government should be just before it is generous. In determining what further progress toward equality of burden is wise at this time we ask Congress to keep in view that the stock of corporations has become widely diffused, the owners now numbering about 19 million individuals, and that the whole body of consumers if the law stands will be paying prices affected by a 13½ per cent tax levied every time the commodity is handled by a corporation, from original extraction to retail purchase, thereby increasing the cost of living. The Railway Business Association stands with other business bodies in the effort to obtain immediate relief for corporate stockholders and consumers.

For intelligent and wise legislation, Congress must depend upon the intensive work of standing committees. To serve this purpose, committees must be organized for effective investigation and manned and equipped to reach, report and defend well-considered conclusions. Some committees uphold tradition in this respect. They bring to their respective branches only such measures as have been thoroughly studied by them, representing convictions which a non-partisan majority of the committee are prepared to support vigorously. This is sound practice. Public hearings should precede committee reports. No bill should be reported without the signatures of a majority of the committee.

With a view to simplifying relations with constituent organizations, the Chamber of Commerce of the United States has modified the method by which the Board of Directors avails itself of Chamber staff service. The Railway Business Association has been a member of the Chamber from its formation. We welcome mutual cooperation with it. We wish it success in its purpose of bringing together for common counsel and action the several branches of business in the country.

BIDS FOR 93 LOCOMOTIVES for broad-gage and metor-gage railways in India were recently invited on behalf of the India Railway Department, as recommended by a special locomotive standards committee of the Railway Board, Simla, and which are to be regarded as future standards for all Indian railways now under control of the Railway Board. Provisional contracts have been secured by British firms. The prices submitted by leading British firms were not in all instances lower than the highest American or Continental bids, yet in the aggregate the differences were insignificant.

Young Railroad Men Meet at Omaha

Program of annual convention co-ordinated with that of Triennial R. R. Y. M. C. A. conference

THREE years ago the first International Younger Men's Conference was held at St. Louis in connection with the International Conference of the Transportation Department of the Y. M. C. A. It was frankly an experiment; it succeeded so well, however, that annual conferences have since been held, one at Detroit in 1924 and another at Pittsburgh in 1925. It was fitting, therefore, that the fourth conference should be held in Omaha, November 19-21, at the same time as the triennial conference of the R. R. Y. M. C. A., whose proceedings are noted elsewhere in this issue. Indeed, joint sessions were held at the opening of the conferences on Friday morning, as well as for the keynote address on "Transportation's Leadership in Right Human Relations" late Friday afternoon, and for the banquet on Saturday evening. There were present 288 young men representing 52 railroads, with 42 speakers and leaders, including railroad officers and workers and Y. M. C. A. secretaries, who accompanied the various groups of younger men to and from the convention, lived in the same hotels with them at Omaha, and acted in various ways in an advisory capacity. The young men came from 34 different states and 3 Canadian provinces.

Following Up the Conference

While the conference was similar in a general way to those which preceded it, there was noticeable an improved technique of handling the various parts of the program, a greater percentage of time for group discussions and a better planning on the part of most of the groups in arranging for a follow-up on the return to their homes. The latter was particularly true in the case of the group of 38 young men from the Union Pacific who assembled in Omaha on the day preceding the opening of the conference to organize and plan to make the most of their opportunity in attending the meeting. It was decided to have each of these delegates turn in a report after each day's proceedings as to the things that made the greatest impression on him. The group officers remained over in Omaha after the conference to study these reports and to prepare a statement based on them for distribution to the 1,300 apprentices on the system. After an interval of a few weeks, examination questions on these findings will be given by the apprentice instructors as a part of the apprentice schoolroom work. It is hoped in this way to extend the benefits of the conference to all of these young men and to afford the delegates a basis upon which to promote local group activities.

Mr. Sines' Welcome

The Younger Men's Conference joined with the Y. M. C. A. Transportation Conference in its opening session. Several of the speakers made special reference to the younger men's movement. In particular George H. Sines, assistant to the vice-president in charge of operation of the Union Pacific System, and chairman of the Omaha committee on arrangements, said in part:

"One of the main purposes of this conference, as I understand it from the point of view of the help to be rendered to young men, is to assist them to be more proficient and better able to meet the problems of life —something in which the older men of this conference, and all forward-looking men, if you please, are deeply interested. Those of us who are of the older group are looking to the young men of today to carry on the great problems of the transportation industry far better than those of us who are trying to handle them today.

"Many of us are prone to think that the railroad industry is an old industry, and that many of its opportunities are closed or gone. We may look at this industry which, second to the farming industry, is the greatest and the most important of all of our industries, as being in one respect, at least, but in its infancy. It is in its infancy so far as the opportunities for scientific development that may come from the studies of men's minds. We are looking forward to the young men to carry on that work much better than those who are doing it today. Particularly the young men in this conference will be afforded an opportunity to discuss freely and frankly the various problems of their chosen profession. They will be afforded the opportunity of a better grasp upon human nature—something that is essential to success in any avocation—and a better grasp, if you please, of the higher ideals of life; a better conception of the dignity, of the promise, and of the importance of railroad work.

"The young men of the railroad today are the officers of tomorrow. True, perhaps, that some of you young men who are here may not become officers. But regardless of that fact, you should so prepare yourselves as to be ready when the opportunity comes. It has truly been said that opportunity knocks loud but once at any man's door, and most of the failures of life may be traced back to the fact that in the boyhood of life there was lack of proper preparation.

"To the young men I would say this: Set your goal in life high and strive to reach it. Do not be discouraged because promotion may seem to come rather slow. Promotion comes only to those who keep plugging and prove themselves fit to receive it. Slowing up on one's job or losing interest in it but affords the opportunity for the man who has progressed to pass around the one who slows up.

"You young men who are in attendance at this conference, from the counsel you will receive and the advice given here, if you profit by that counsel, will be far better equipped materially to meet the problems with which you are to be confronted tomorrow, and the tomorrows that are to come. If each of you will but consider himself a committee of one to take back to those at home the message that he receives here, they too, will profit by this conference, and you will have done a good deed."

Election of Officers

The first session of the Younger Men's Conference on Friday afternoon was called to order by President Warren B. King of the Great Northern. After a service of song and fellowship led by John W. Stokes, Y. M. C. A. secretary of boys' work at St. Paul, Minn., the conference proceeded to the election of officers.

Much friendly rivalry was caused by this election. Several delegations enthusiastically backed men who had rendered a distinct service in their local organizations. The candidates were each asked to speak from the platform for one minute. As a result the following were

elected: President, Paul Smith, clerk, stores department, Pennsylvania Railroad, Pitcairn, Pa.; first vice-president, George E. Endicott, machinist's apprentice, Union Pacific, Council Bluffs, Iowa; second vice-president, G. W. Hoke, machinist's apprentice, Missouri-Kansas-Texas, Parsons, Kansas. Two secretaries were appointed by the officers—G. E. Daniels, trucker, stores department, Union Pacific, Omaha, Nebr., and Lewis W. Heard, machinist's apprentice, Michigan Central, St. Thomas, Ont. That the younger men are planning to assume a larger responsibility in the preparation of future programs is indicated by the fact that they also elected an advisory committee from their group to assist the officers in arranging for the next meeting. The members of this committee are: M. T. Reynolds, clerk, New York Central, New York; B. G. Wilson, stenographer, New York, New Haven & Hartford, New Haven, Conn.; J. B. Vadurra, clerk, Atlantic City Railroad, Camden, N. J.; and William Hubbard, electrical apprentice, Norfolk & Western, Norfolk, Va.

Group Discussions

Under the leadership of E. W. Brandenburg, of the boys staff of the National Council of the Y. M. C. A., an open forum was held to suggest topics for the group discussions during the conference. These subjects were divided into four groups—those having relationship to the job, the home, the church and community and to boy and girl friends. The number and variety of these questions, which were developed in the comparatively brief period, indicated the interest of the young men in a practical consideration of these things. The smaller groups each spent two periods in discussing what they considered to be the most important of these topics, a secretary for each group keeping a record of the more important points as well as the recommendations growing out of the discussions.

Vocational Guidance

On Friday evening addresses on transportation as a life work were made by C. C. Robinson of the boys' staff of the National Council of the Y. M. C. A. and Roy V. Wright, managing editor, *Railway Age*, on "Transportation as a Life Career." The boys then filled out vocational blanks indicating what classes of work they were interested in and what position they wished to fit themselves for. On the following afternoon they met in small groups with practical railroad officers who could advise and counsel with them as to how best to prepare themselves for that which they showed an inclination to follow.

On Saturday morning Warren King, the delegate from the Conference to the Helsingfors, Finland, World Y. M. C. A. conference, reported on his experience and observations at that meeting.

The conference banquet was held jointly with that of the men's conference and is reported elsewhere in the story of that meeting.

A. R. E. B. Clubs

As an example of the interest manifested in the A. R. E. B. clubs 55 railroad officials, apprentice directors, personnel officers, railroad "Y" secretaries and others met voluntarily for a session to discuss how to organize A. R. E. B. clubs, prepare programs, keep up the interest, etc. Information was exchanged as to the kind and location of clubs now organized. Three points were especially emphasized by the leaders in the organizing of such clubs:

(1) That youth responsibility be emphasized.

(2) That the boys themselves who have attended the annual conferences be allowed to express their interest and their desires to their superiors and before club meetings.

(3) That the officers and leaders be alert to see that the proper "follow-up" methods are used to stimulate the younger men and to give them encouragement in service of this nature.

Conference Findings

The report of the findings committee was adopted. It follows in part:

"We recommend that for our next conference three forms of recreation be arranged for Saturday afternoon and that each boy choose the one he is most interested in.

"We notice the tendency to further the purposes of our conferences through system conferences. We recommend that every railroad adopt this form of system conference during the next year.

"We recommend that a central bureau be established for the purpose of communication between the various A. R. E. B. clubs.

"We recommend that a spirit of tolerance and respect for the nations, races and individuals of different viewpoints be our standard of conduct or practice and that this spirit of the World Conference be extended to our friends, associates and fellow workers.

"We recommend that the vocational counciling groups be continued next year, as they are of a great value to the delegates in helping them find their right vocation in life. Also that the same idea be carried out in the conferences held by the individual railroads.

"We recommend that the slogan of the 1927 Conference be 'Seek the Good.'

"We recommend that the speeches for the 1927 conference be shortened and that the speeches be made mostly by the delegates or those directly interested in the younger men's division.

"We recommend that Younger Men's Conferences be held separate from the Older Men's Conferences. Thereby the speakers and discussion leaders will be free to give all their services to the Younger Men's Conference.

"We recommend that the advisory committee issue a questionnaire previous to the 1927 conference to discover problems for discussion and form a basis for the 1927 program.

"We realize that the relationship between young men and women is one of the most vital things and should be considered seriously and on basis of one of our important contributions of life. Men of this convention recognize the fact that there is a new freedom among women and girls. Some are going to extremes. Therefore be it recommended that we as young men should lead in elevating this relationship to a high and sacred place and not throw this responsibility on the girl. We also believe that one of the strongest influences for good in our lives is wholesome friendship of young women.

"We think of Christianity as the 'Jesus Way of Life,' which as Christians we are called upon to live out in every relationship of life—in our homes, in our work, in friendship, and social life, and in all community, national and international, and interracial relationships. To this end we recommend that A.R.E.B. clubs and younger railroad men make an intensive study of the gospels of Matthew, Mark, Luke and John to discover what the Jesus Way of Life involves."

The conference adjourned on Sunday afternoon after an appropriate address by Glenn E. Jackson, a member of the boys' staff of the national council of the Y. M. C. A.

Human Relations Problems Discussed

Transportation department of the Y. M. C. A. holds its seventeenth international conference

THE program of the triennial conference of the Transportation Department of the Y. M. C. A., which met in Omaha, Neb., November 19-21, centered about the keynote topic "Transportation's Leadership in Right Human Relations." There were present 333 regular delegates, as well as 59 fraternal delegates representing the railroad brotherhoods and other organizations. The fourth annual International Younger Railroad Men's conference met in Omaha at the same time, the two organizations holding three joint sessions, one of which was the banquet on Saturady evening.

Election of Officers

The conference elected the following officers: President, Dr. John P. Munn, chairman of the board of the United States Life Insurance Company and chairman of the Transportation Department of the National Council of the Y. M. C. A.; first vice-president, C. L. Gray, president, Union Pacific System; second vice-president, J. B. Parrish, assistant vice-president, Chesapeake & Ohio; third vice-president, B. B. Young, assistant to the vice-president, Pennsylvania Railroad, Chicago; fourth vice-president, L. L. Graybill, general baggage agent, Canadian National, Toronto; fifth vice-president, R. C. Johnson, superintendent, Pullman Company, Omaha; secretary, L. C. Douglas, chief clerk to the assistant general manager, Pennsylvania Railroad; assistant secretary, H. S. Bickel, secretary, Baltimore & Ohio R. R. Y. M. C. A., Brunswick, Md.

A new feature was introduced i. the form of discussion groups. The conference was divided in 15 such groups which met after lunch on Saturday to consider human relations in transportation—this question had been touched upon by all of the speakers at the preceding sessions. These discussions were summed up at the closing session of the conference on Sunday afternoon.

The conference opened in joint session with the Younger Men's Conference on Friday morning. Addresses of welcome were made by George H. Sines, assistant to the vice-president in charge of operation, Union Pacific System and chairman of the Omaha committee on local arrangements, by Ernest H. Hoel, president of the Omaha Y. M. C. A.; and by George Endicott, president of the American Railway Employed Boys' Club at Omaha.

Mr. Sines, in his welcome, made excellent suggestions to the younger men, as reported elsewhere in the story of that conference. Mr. Endicott, in referring to the Pittsburgh Younger Men's Conference, indicated that it had "given him a new slant on life," that he had gained a greater appreciation of the company he worked for, and that he had come in contact with a group of the "fine fellows." He also emphasized the value of the motto "Seek the good." It is here if you look for it.

Purposes of the Conference

E. I. Ford, assistant general superintendent, Chesapeake & Ohio, Huntington, W. Va., responded to the addresses of welcome and also told of the way in which his road follows up its system younger men's conferences. At least 70 per cent of the 123 young men who attended its last conference are now taking special studies or instruction to better fit them for their vocation.

G. K. Roper, Jr., senior secretary of the Transportation Department of the Y. M. C. A., outlined the purposes of the conference. These were roughly, (1) to bring the delegates to a proper appreciation of the value of the transportation industry in the life of the two nations represented—United States and Canada. (2) To consider the Christianization of the transportation industry. The railroads have experienced a wonderful physical development—emphasis must now be placed upon the personnel. Better selections depend upon the promotion of friendship, harmony and understanding.

Carl R. Gray, president, Union Pacific System, paid a high tribute to the R. R. Y. M. C. A. secretaries and the importance of their unselfish service. He emphasized the need of real character for success in life and indicated that the Y. M. C. A. had had an influence in bringing about the changed spirit on the railroads since 1920.

At the afternoon session on Friday Dr. John Timothy Stone of Chicago made the keynote address. Railroad men, he said, are united in a common service for the benefit of mankind and it is not to be wondered at if the railroads take a place of leadership in promoting better human relations in industry. The basis for right relations is "to feel for the other man, and put yourself in his place." Appreciate and believe in one another. Don't hiss—cheer!

A. T. Wright, vice-president of the Order of Railway Conductors, spoke at the Friday evening session on the large contribution of the employee organizations to right human relations. Among other things they had promoted safety and better working conditions. An excellent illustration of harmonious working with the managements was the co-operation of the brotherhoods in securing the enactment of the new labor legislation.

William Knowles Cooper, general secretary of the Y. M. C. A. at Washington, D. C., followed Mr. Wright with an address on "The Underlying Philosophy of the Y. M. C. A.

The R. R. Y. M. C. A.

At the session on Saturday morning Roy V. Wright, managing editor of the *Railway Age*, spoke on the "Transportation Department of the Y. M. C. A." He outlined its aims and activities and commented upon its adaptability to meet changing conditions. Originally designed primarily largely to meet the needs of train and enginemen it has now broadened its scope on some roads to include all of the employees. Its physical program has been enlarged to one including health and recreation. Its spiritual program, non-sectarian and based on broad Christian principles, is stressing the practical application of the Golden Rule and better relationships. Its educational work, once confined largely to the teaching of English, mathematics, mechanical drawing, etc., because schools and other agencies had not yet been organized to meet these needs on the part of the railroad group, has been extended to include foremanship and leadership training and vocational guidance. Whereas formerly little was done in the way of boys' work we now have the A. R. E. B. Club and the Younger Railroad Men's Conferences.

The work has extended far beyond the "Y" buildings. It will not fail if based upon a well balanced program and sound, common sense Christian principles.

Transportation's Leadership in Right Human Relations

By R. N. VanDoren
Vice-President and General Counsel, Chicago & North Western

In my consideration of this subject I have assumed that "Transportation's Leadership" means leadership by the entity, composed of employees and management. I cannot imagine a railroad leadership less comprehensive than this. A leadership of railroad presidents might not be railroad leadership at all, and employee leadership alone would ignore an important and constituent part of a railroad. Therefore, if we are to have leadership of the right sort, we must first give thought to the relationship that is to exist between employee and management, because if that relationship be improper or inequitable there will be defective and unwise leadership, if there could be leadership at all.

I desire, therefore, to discuss with you some fundamental conceptions of labor as I have come to understand them. I embrace within the term "labor" all effort on the part of those connected with the transportation systems towards the successful and proper conduct of the business. There is perhaps no activity of life with which we are more concerned, or about which we know so little. We may have a fairly comprehensive idea of the particular job with which we are directly concerned, but of its larger aspects, of its relationship to the great field of human effort, we know comparatively little. We are so busy with our own little dramas that we miss the great panorama of life with all its interesting and picturesque scenes. I do not mean to minimize the importance of your task and mine. On the contrary, my hope is to be able to so link up those tasks with the great scheme of life as to give them added significance and increased interest.

Labor a Blessing

I take the position that labor, far from being a curse, or a burden, is the greatest blessing ever conferred on man. What this old world would have been but for labor no one can imagine. But when you look at the great things accomplished by human endeavor you wonder what would have taken their places had toil not been devoted to their creation. It seems to be a law of the Divine plan of the universe that the best, the grandest, and the most beautiful, shall be produced only by a union of Divine inspiration and opportunity with earnest human effort. God made the quarries of carrara, but man made the statue of Venus. God furnished the materials from which man painted the Sistine Madonna. God filled all nature with harmony and order, but man produced the symphonies which carry you to the heights of vision and exultation. Our great material development, our commerce, our art, our law, our boasted civilization, have been made possible only by virtue of the strivings of man for better things. Take toil out of life and you leave it an inert, aimless, purposeless existence. Labor is a privilege, not a curse; toil is an opportunity, not a burden.

The whole function of useful endeavor is the satisfaction of human needs and desires. Labor is not an end but a means to an end. No one labors for labor alone. The man or woman who regards his or her task as an isolated finality is of all people the most miserable. To such an one labor is indeed a burden.

I have said that the whole function of useful endeavor is the satisfaction of human needs and desires. This does not mean that we, as individuals, must get all we can for ourselves; for what then is to be done for the unfortunates who cannot labor and get their due share? If we do not now produce something more than we consume the world will not advance, and those who follow us will condemn us as time-servers or selfish misanthropists.

Building for the Future

But what has this to do with our job of running a railroad? It has everything to do, my friends. These railroads will be here after we have all passed on. We must leave them in such an efficient and improved condition that they can continue to function effectively when the increased demands of the future are made upon them. We have no moral or legal right to consume every ounce of the product of transportation now produced and forget the obligations of the future. We have no right to absorb every dollar of profit and leave nothing for the permanent upbuilding and enlargement of the systems which we serve.

We should be making permanent improvements to these properties out of current earnings in order that this generation fulfill its obligation to the future. But this we cannot do so long as the margin between revenues and expenses is so small. These large capital expenditures of which I spoke are needed not only in building for the future. They are required for present economic efficiencies which will reduce operating expenses and allow a larger margin of profit. To accomplish these things, however, requires the energetic co-operation and good will of every man and woman in these organizations. We want to continue to pay good wages, but let us all be sure that we are giving value received for every dollar of compensation we receive. Let us feel that any breakdown in efficiency is a personal reflection on us and postpones the fulfillment of our obligation to society, and retards any movement looking to an improvement in our individual status.

Railroads' Fundamental Obligations

Every railroad has three fundamental obligations: The first is to the public in the way of service; the second is to its employees in the payment of wages; and the third is to the stockholders in dividends. Each is entitled to earnest consideration and fair treatment. None can be fulfilled without money. Railroads have no mysterious money supply. Our only source of revenue is from transportation charges. These transportation charges are largely beyond our control, being regulated by public authority. We are striving all the time to keep these charges up to a level which will permit us to discharge these obligations. In this effort it is to the interest of every employee to give faithful co-operation.

We cannot avoid our debt to the public. Service must be rendered whether dividends are paid or not. Stockholders, whose labor made the building of the railroads possible, are the first to suffer from adverse conditions and the last to be rewarded from increased earnings. If we cannot render service to the public and pay high wages to employees then wages must come down, because public service comes ahead even of wages. Railroad managements favor a liberal scale of wages, believing that the character of service performed by railroad labor entitles it to a fair reward. But wages, along with other expenses, should not absorb so much

of gross revenues as to leave no surplus for present necessities and to provide for future requirements.

Labor's Place in Economic Structure

Thus you will observe the responsibility resting upon labor in the successful operation of a railroad. No one in this day and age desires to oppress labor. On the contrary, enlightened thought contemplates the dignity of labor. Once let labor as a whole get a glimpse of its true place in the economic structure and the future of industry is assured.

Disagreements between management and employee will always exist. Not all those in places of executive responsibility are wise and just. And not all employees are fair and reasonable. This has always been true, and doubtless always will be. Disagreements, if honestly advanced, are not to be particularly deplored. It is not that there should be no disagreements, but that there should be no bitterness or malice. These latter have no place in human relations. It is only out of disagreement that ultimate truth and right prevail. But for disagreements autocracy would prevail.

Sources of Disputes

One of the most fruitful sources of dispute is a misunderstanding of facts. There should be the fullest opportunity for all parties to know the facts. If then they disagree, an orderly method of settling the dispute should be provided. The disruption of industry through strikes should find no place in this enlightened age. They are uneconomic, wasteful, and always cause a loss to both sides. They are a tax upon industry which all people must pay, whether they are directly concerned or not. In fact, this interdependence of industry is generally unknown or ignored.

In this great economic structure there is a place for everyone; everyone but the shirk. And because of the shirk the rest of us have to do that much more. So, too, when one of the toilers in this immense workshop is taken sick or is injured, it is an economic loss which all the rest must share. Hence the importance of the safety movements and of doctors and hospitals.

In the great scheme of life happiness plays a big part. No man can do his best when unhappy and discontented. Sickness and personal injury are the greatest obstacles to happiness. When, therefore, you bring to the stricken homes some measure of cheer and comfort you become "the rainbow to the storms of life; the evening sun that smiles the clouds away."

Looking to Railroads for Leadership

This industry represents the greatest aggregation of capital outside of agriculture. It is a highly organized and thoroughly modern institution. Its labor is of a high order of intelligence and thoroughly united. It is in contact with every element of our civilization and is of vital concern to the progress and prosperity of all industry. Here must be worked out the problems of employee and management, and a righteous relationship established and maintained. The nation is looking to the railroads to demonstrate the possibilities of co-operative industry—co-operative not in form but in that truer sense of the harmonious striving of men to accomplish a great task. When we have done this we shall have justified our claims to leadership and will have made possible a realization of right human relationships.

But this we can do only by discovering and acknowledging our individual responsibility and by an attitude toward our individual tasks which will regard them as opportunities and not as burdens.

So let us value our opportunity and capacity for labor. Let us think of ourselves as integral parts in a great world-wide workshop. Let us never forget that this job of ours must be well and faithfully done, else there is to that extent a break in the system. Let us think of our own job as a God-given chance to justify our existence. Then may we find time and inclination to help the other fellow who may be less fortunate than we. We may give to him of our sympathy, our encouragement and our aid. Thus will his life be made brighter and ours more complete.

Convention Banquet

The Transportation Conference and the Younger Men's Conference held a joint banquet on Saturday evening, G. H. Sines presiding.

Warren King of the Great Northern, the retiring president of the Younger Men's Conference, spoke on the "Developments of the Past Three Years Among the Younger Railroad Men." The annual conferences have made it possible for the younger men to become acquainted with railroad officers and men, to realize the importance of railroad work and to form better ideals of service. The individuals have had an opportunity to express themselves in the group discussions. In vocational guidance the young men have received answers to their questions which were not biased by local conditions. The conferences have also greatly stimulated the extension and strengthening of the A. R. E. B. clubs.

B. E. Kelley, a retiring vice-president of the Younger Men's Conference and a machinist's helper on the Chesapeake & Ohio at Logan, W. Va., traced the progress in improving the annual conferences, which have been held since the first one at St. Louis in 1923. They have helped the young man to find the right relationships to his job, to the fellows with whom he works, to his girl friends, and to his God.

C. E. Anderson, president of the Shop Employees' Association of the Union Pacific System, spoke on the "Right Ideals for Young Railroad Men." An ideal is a "driving force of life." Railroad workers serve the public and should therefore be dominated by the highest ideals of service. They should study to cultivate the right ideals of service.

M. P. Grady, foreman of the Pennsylvania System, Canton, Ohio, recited a number of his poems relating to railroad experiences, which were enthusiastically received.

G. K. Roper, Jr., senior national transportation secretary, referred to the marked change in the improved relations between the men and managements in recent years and directed special attention to the better relations meetings held on many railroads under R. R. Y. M. C. A. auspices. Here on a neutral basis and a Christian platform better understandings have been brought about and forces have been set in motion in the interests of mutual co-operation based on the practical applications of the Golden Rule. Twenty-seven such meetings have been held with a total attendance of over 7,000 officers and men.

Ivan B. Rhodes, executive secretary of the National Council of the Y. M. C. A., spoke on "A Challenging Opportunity for the Transportation Department of the Y. M. C. A." It should create and maintain conditions under which the soul of man can grow. This can be done in the following ways:

1—Maintain clean, wholesome buildings—physically and in atmosphere.

2—Help men to enjoy all normal relations of life.

3—Help men to enlarge and broaden their interests.

4—Give men an opportunity for self-expression.

5—Bring men together in discussion groups to share their experiences.

6—Help men to do things that are creative.

7—Help men to find spiritual realities.

Conference Findings

The report of the findings committee was adopted. It included the following:

"We feel that the application of the Golden Rule, as vitalized by the Master's conception of our relations to God. (Luke 10:25-28), should result in better relationships between the men and managements of the railways.

"We believe that emphasis should be placed upon the great need of strengthening the personnel of the Railroad Y. M. C. A., in increasing and bettering the equipment and in expansion to needy and unoccupied territory.

"We heartily commend the group discussion plan, as experimented with at this conference, and urge its continuance and extension for the following reasons: It stimulates right thinking, enhances men's interest in common problems and helps in their solution, and it gives opportunity for self-expression.

"We recommend the continued promotion of better relationship programs."

Devotional services at the various sessions, with appropriate talks, were led by Dr. George L. Robinson of McCormick Theological Seminary, Chicago. The music, which had an important part in establishing the right sort of atmosphere, was led by George W. Campbell of Chicago, assisted by David C. Robel of South Bend, Ind., at the piano.

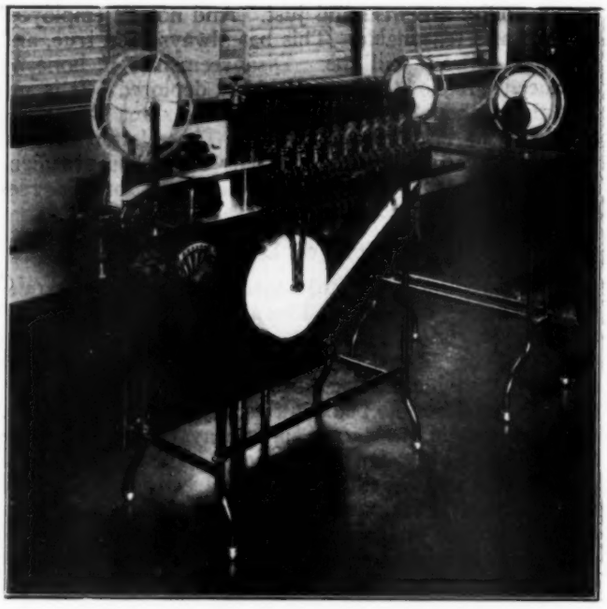
The conference adjourned on Sunday afternoon.

Tape Recorder Checks Operators' Efficiency

THE Santa Fe has a 20-circuit recorder in its general relay office at Topeka, Kans., which has been in continuous service 24 hours a day for the past 16 months. This recorder is a valuable adjunct to the telegraph service in that it provides a graphic record of the operation of the circuits which it serves. The handling of correspondence in connection with the investigation of errors is greatly expedited by reason of the ease and accuracy with which the responsibility may be fixed. With this graphic record operators are shown their errors and faults in the handling of the telegraph file and in most cases they, as well as the railroad, profit thereby.

To the competent telegrapher such a record is a protection and to the less competent operator it is a means by which he may be brought to a realization of his shortcomings. In the opinion of the Santa Fe telegraph department, this method of monitoring circuits is more economical than that obtained by placing a supervisor in a room apart from the telegraph room for the purpose of "listening in" and is more efficient for the reason that it provides a 24-hour record on the entire 20 circuits, whereas an individual can monitor but one, or possibly two circuits at a time. The maintenance cost is said to be nominal.

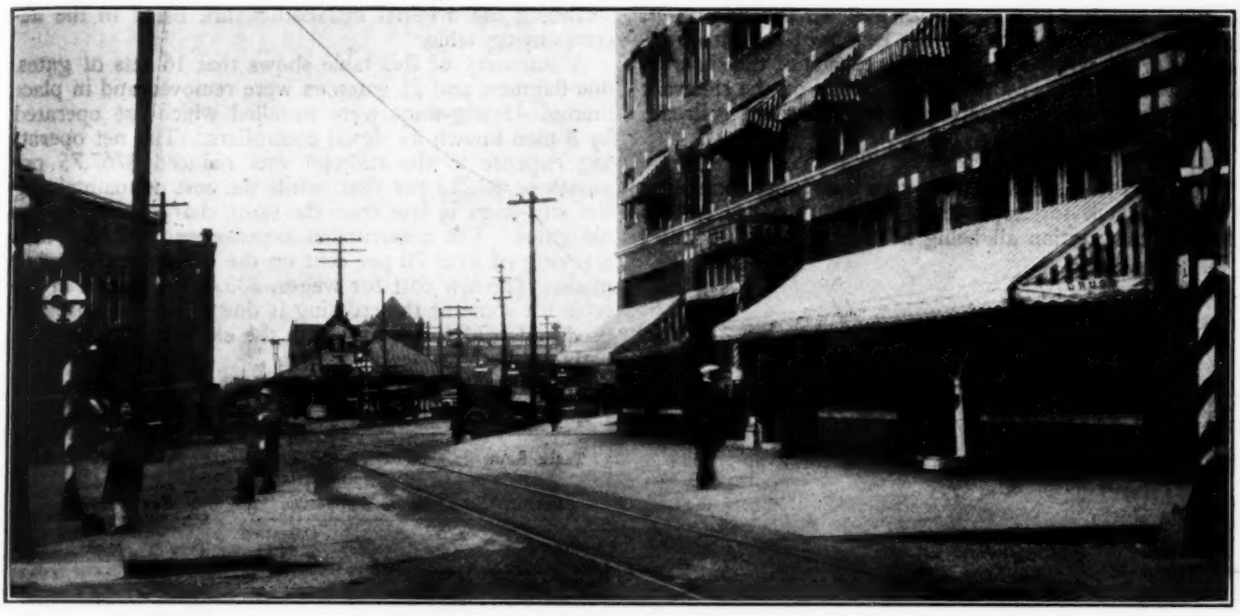
The equipment installed in the Topeka office is known as the Lamson tape recorder, manufactured by Hulit & Co., 625 West Jackson boulevard, Chicago, and makes an individual record of each circuit by means of simple fountain pen recording units. These units are similar to the telegraph sounders in regular service and produce tape records which are exact duplicates of all messages as received audibly over the regular sounders. A feature of this recorder is the method of mounting the recording pens and the ease with which a pen may be removed from the machine for filling, or any other purpose, without interfering with the recording of the other circuits. All records are on one side of the tape, there being a separate line for each circuit. The individual recorders are mounted in a row on both sides of the moving tape. Every part of the machine is completely in



This Tape Recorder Provides a Continuous Graphic Record of 20 Morse Telegraph Circuits

view, upon removal of the dust cover, thus enabling one to determine readily whether all units are working properly. A small fractional-horsepower motor operates the tape winding and unwinding reels of the machine through a suitable gear reduction. An accurate time record is provided on the tape by means of an electric time stamp which makes an imprint every minute.

A New Haven Electric Train



View Looking North Along North Western Track Across Douglas Avenue, Edge of Division Street in Foreground

C. & N. W. Replaces Highway Crossing Gates With Wig-Wags

Twenty-five crossings in Elgin, Ill., protected by 41 *signals, with annual saving of* $9,213*—Special control solves difficult problem*

By J. A. Peabody
Signal Engineer, Chicago & North Western

THE Chicago & North Western has recently completed an extensive installation of 41 wig-wags in the city of Elgin, Ill., as protection for highway traffic at 25 street crossings, there being two wig-wags at 16 crossings and one at each of the remaining nine crossings. These wig-wags replace gates or flagmen at most of the crossings and have thus made possible a saving of $9,213 a year.

Why City Desired Gates Removed

About three years ago a proposed hotel was designed to be built on the corner of Douglas avenue and Division street in Elgin. A single track of the North Western line to Fox Lake cuts across this corner and the two crossings of the two streets with the railroad were protected by gates with the gateman's shanty directly in front of the proposed hotel lobby on the first floor, resulting in such an unsightly outlook from the hotel, that the promoters of the hotel were almost ready to abandon the project when it was decided to request the city commissioners to order the railroad to remove the obstructions. The commissioners were unwilling to order the gates to be removed without some other protection being installed. Therefore, they requested the railroad to advise as to whether an installation of wig-wags would take care of the situation, the railroad having suggested a trial installation nearly a year previously. A conference resulted in an agreement that the railroad should replace the gates with wig-wags to protect these crossings, two wig-wags to be installed on each street and all to be manually controlled from a tower centrally located.

Special Control Required

Automatic control of these wig-wags on the approach of trains could not be used on account of the fact that the track is occupied for a considerable proportion of the time by switching movements in which the train does not come to the crossing and likewise trains stopping at the station nearby would cause confusing indications. It was, therefore, arranged to start and stop the wig-wags with manual control by a man known as a signal controller to be located in a tower placed in an open space across the street and away from the hotel. A separate enclosed type switch with a large handle controls the two wig-wags for each of the three street crossings, the wire connections being carried overhead to each signal. A storage battery in the tower furnishes power to operate the wig-wags.

The right of way, which is only 33 ft. wide, crosses the streets at an angle, as shown in the sketch. The streets are approximately 60 ft. wide with sidewalks on both sides, leaving the paved way rather narrow and to add

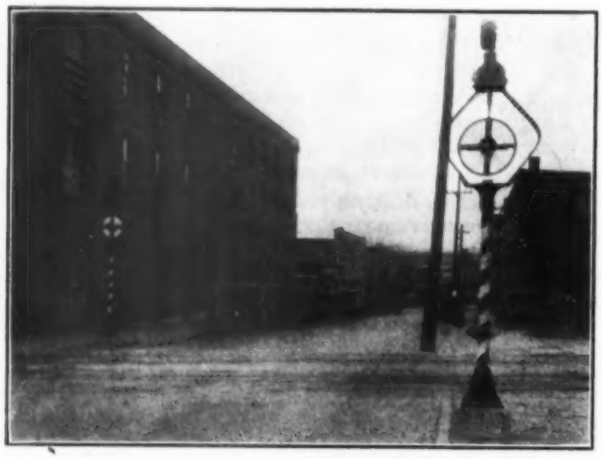
to the difficulties one street has a street car line on it, making it impossible to use the center of the street location for the wig-wags. Therefore, each of the six wig-wags was placed just inside the curb line on the sidewalk on the right side of the street approaching the railroad.

Service Proves Satisfactory

The man in the tower, known as the signal controller, keeps a watch for approaching trains, the movements through this section all being at speeds under 25 miles

An Installation of Six Wig-Wags Replacing Gates at Busy Crossings in Elgin, Ill.

an hour, thus allowing him plenty of time to start the wig-wags before the train arrives at the crossings. In view of the fact that the wig-wags for each crossing are controlled by a separate switch he can stop each set as soon as the rear of the train goes by the street. If the wig-wags are started for an approaching train making a switching movement which stops and then goes the other way before reaching the crossing, the man can



View from South End of Station Platform Looking West on Dexter Street

stop the wig-wags, thereby affording protection only when needed.

The traffic on these streets is heavy, in fact Douglas avenue with the car line is often congested. The operation of the wig-wags has been so satisfactory to the public, to the hotel proprietors and to the railroad, that after a year's service a suggestion was made by the city authorities that the railroad should replace all the gates and most of the flagmen at other crossings in the city with wig-wags. As a result of a survey and a series of conferences, an extensive program was carried out which, including the original installation, are listed in the accompanying table.

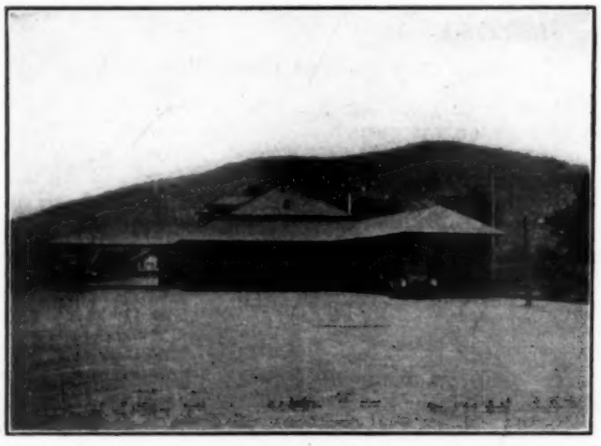
A summary of this table shows that 16 sets of gates, one flagman, and 21 gatemen were removed and in place thereof 41 wig-wags were installed which are operated by 8 men known as signal controllers. The net operating expense to the railroad was reduced $767.75 per month or $9,213 per year, while the cost of maintaining the wig-wags is less than the same charge was for the old gates. The construction expense was $12,650, thus a saving of over 70 per cent on the investment is being made. The low cost for wages, $35.46, as shown in the table for some of the crossing is due to these men being used and paid for jointly with the electric railway company.

The same type of wig-wag is used for all crossings, regardless of whether the control is manual or auto-

Table Showing Changes in Crossing Protection at Streets in Elgin, Ill.

	Former protection			New protection		
Street	Type	Men	Operating cost	Type	Men	Operating cost
Lake	.....	..	.....	2 Wig-wags	..	.....
Prairie	.....	1	.....	1 Wig-wag	..	.....
National	Gates	1	$70.92	2 Wig-wags	..	.....
Fulton	1 Wig-wag	..	.....	1 Wig-wag	..	.....
Du Page	Gates	2	116 84	2 Wig-wags	..	$69.67
Ziegler	Gates	..	.....	1 Wig-wag	2	.....
Spring	Gates	..	.....	2 Wig-wags	..	.....
Chicago	Gates	2	69.67	2 Wig-wags	..	.....
Milwaukee	Gates	2	116.84	2 Wig-wags	..	.....
Division	Gates	..	.....	2 Wig-wags	..	.....
Douglas	Gates	2	69.67	2 Wig-wags	..	69.67
Dexter	Gates	..	60.92	2 Wig-wags	2	.....
North	Flagman	1	.....	2 Wig-wags	..	.....
Brook	Gates	..	.....	2 Wig-wags	..	.....
Kimball	Gates	2	121.84	2 Wig-wags	..	.....
Ann	Wig-wag	..	.....	1 Wig-wag	2	121.84
North Grove	Gates	2	116.84	2 Wig-wags	..	.....
McBride	Gates	1	.....	1 Wig-wag	..	.....
Slade	Wig-wag	..	.....	1 Wig-wag	1	60.92
Walnut	Gates	2	121.84	2 Wig-wags	..	.....
South State	Gates	1	70.92	2 Wig-wags	1	35.46
Wing	Gates	..	.....	1 Wig-wag	..	.....
Schiller	.....	1	.....	2 Wig-wags	..	.....
Washington	Gates	2	121.84	1 Wig-wag	..	35.46
Lawrence	.....	..	.....	1 Wig-wag	..	.....
Total	.....	22	$1,125.31	41 Wig-wags	8	$357.56

matic. At outlying street crossings in the city automatic control is used. As will be noticed in the pictures, the wig-wags are low, being nine feet from the pavement to the center of the wig-wag when mounted at the side of the road and six feet when at the center. This low mounting is considered important to be effective. Bells are used on all wig-wags in outlying territory but sparingly in the business districts for fear of their being a nuisance. Bells are, however, considered as a good auxiliary protection, particularly for pedestrians.



N. Y., N. H. & H. Station at Lenox, Mass.

Railroads and the Government*

In spite of Transportation Act many attempts still made to regulate railways in Congress—Railroad baiting, however, now unpopular

By Whitefoord R. Cole
President, Louisville & Nashville

IT is my opinion that the Transportation Act of 1920 is the most enlightened piece of legislation, either state or national, that has yet been enacted, with respect to the regulation of these great systems of railway transportation.

The heart of that act is Section 15-a, the rate-making provision of the Act. In that provision, for the first time, there was wrought into our national policy the theory that not only must transportation rates be reasonable for the service performed, but they must be sufficient to maintain an adequate and efficient system of transportation.

To be sure, substantially that had been the common law all the time, but for the first time there was wrought into a statutory enactment a provision to that effect. That provision is simply this, as you all know, that the Interstate Commerce Commission, in exercising its powers to fix what may constitute just and reasonable rates, shall so fix those rates that under honest, efficient and economical management, the railroads of this country shall be permitted to earn a reasonable return on the value of the property devoted to public service, leaving in the hands of the commission the power and authority, not only to fix the value upon which such returns may be earned, but the rate of return itself. But the law goes further than that. It provides that, should any railroad earn more than six per cent on the value of its property, one-half of that excess earning must be turned into the treasury of the United States. This is the so-called "recapture" clause. That provision of the Act has been described throughout the length and breadth of this land as constituting a government guarantee of earnings. It is absolutely nothing of the kind. A guarantee implies a guarantor, and if the United States government had been guaranteeing 5¾ per cent, which the commission has fixed as the reasonable return on railroad property since the effective date of the Transportation Act, the government would owe the railroads of this country hundreds of millions of dollars, and if there is any such guarantee in effect, I should like very much to collect my part of it.

Why So Much Misrepresentation?

It is astonishing that there should be so much misrepresentation about this eminently fair provision of the Transportation Act. As to the results of the operation of this Act, I point to the unparalleled transportation performance of the railroads of this country for the last three years, when in each of those years, and in almost every month, the railroads have broken all previous records in the handling of tonnage, without congestion, and without appreciable car shortage, or any of the attendant evils that we have been so accustomed to for many years prior during periods of extraordinary activity. Numerous causes have contributed, of course. The underlying one is the something like $4,000,000,000 which the railroads have spent in the last six and one-half years in the improvement of their facilities, largely out of funds borrowed on the faith of the national policy as expressed in this Act. A second and important and contributing factor is the improved esprit de corps of the employees of the railroads. Last, but by no means least, is the wonderful co-operation which the railroads have received from the shippers, without which this transportation performance would have been impossible. I call your attention also to the tremendous and necessary effect on the prosperity of the country that these enormous expenditures for additions and betterments have meant. The railroads are the largest single purchasers, certainly of some classes of raw material, and taken as a whole, they are the largest purchasers of all classes of raw materials in the country.

A Suggested Amendment

This comprehensive piece of legislation is not perfect. Few human instrumentalities, if any, are. But it represents a tremendous advance in the scientific regulation of the railroads. It could be improved on. I suppose everybody in the room has got some idea that he feels would represent an improvement in this legislation. I know I have one, and that is, if this recapture clause is to be retained in the Act, it should be so amended that not a single year's operation of a railroad would be the yardstick as to the application of the recapture provision. Inevitably, if that policy is pursued, it will result in the railroads earning less on an average than the statutory rate of return; because if one of them reaches or exceeds 6 per cent, it must give up one-half of those earnings. Of necessity there will be some years, as most of the years since 1920 have been the case, when they will earn less than the six per cent, and thus the average will fall of necessity below the statutory rate of return. Therefore, I think if this provision is to be retained in the Act, it should be amended so as to provide that three or perhaps five years' earnings should average 6 per cent before the recapture clause becomes effective.

It was hoped, when this piece of legislation was enacted into law, that it would definitely remove the railroads from the field of politics, much in the same way that the enactment of the Federal Reserve Law did remove banking from the political field. But the lure of railroad baiting has proved too strong for some of the politicians of the old school. They have not yet learned that the American people, taken as a whole, have a very much better understanding of the railroads, and their managements, and their personnel, and their aspirations and hopes, and what they are attempting to accomplish in behalf of the people of this country, than they used to have. I am not saying that in the old days of railroad baiting, when it was really a popular and profitable pastime for politicians, railroad managements were altogether faultless. It is a long way we have come since the old days. The books of these railroads are open books. The executives of these railroads take

*Abstract of an address delivered at the annual dinner of the Railway Business Association at the Hotel Commodore, New York, on November 18.

their friends and their patrons in the territories they serve into their confidence, and the public need their confidence. They have no secrets. It is the most closely regulated business on earth.

I have sometimes thought that in view of the fact that the government fixed the rates, which of course fixes the income of the railroads, and largely fix the prices they must pay for labor, and they had to buy everything else in the open market, when market conditions fixed the price of things, I have very often thought that the average railroad president did not have much to do but to hunt up the money with which to pay the deficits. That is not altogether true, certainly not in the last two or three years. The sun of prosperity has been shining on them to a reasonable degree, as a result of this more enlightened policy. In the last session of Congress nearly 200 bills were introduced, affecting every phase of railroad operation, apparently from the most trifling things to measures that seemed to aim at their destruction. It is creditable to the good sense of both houses of Congress that substantially no measures of this type got through. The most imminent danger that is affecting the railroads today is the tendency being exhibited in Congress from time to time towards direct legislation by Congress on rates and practices of railroads.

Regulation by Deliberation

Congress is a great deliberative body. The rate structure is not a thing that can be safely dealt with in a great deliberative assembly. The national policy has wisely confided that important and responsible task to a body of experts in the personnel of the Interstate Commerce Commission, and that is where it should be allowed to remain. Attempts at direct legislation on these questions inevitably will result in a political rather than an economic consideration and determination of these questions.

Take attempts that have been made to enact laws designed to reduce rates on specific classes of commodities like farm products. I yield to no one in my genuine anxiety to see as important a part of our body politic and our economic structure as the agricultural interests placed on a firm foundation and one of lasting prosperity, but there is no foundation in law, nor justification in economics, why something should be taken away from one class of our citizens and given to another, based solely on the necessities of the second class. I do not care who they are, whether they are farmers or anybody else. That is a dangerous doctrine to introduce into the administration of law in this country. If it is wise and proper and just, when the price of farm products is low, provided always that the rate is a reasonable and equitable one, to reduce freight rates for the farmer, because of his necessity, by the same token, why should not rates be reduced on coal, when the price of coal is low, and on steel, when the price of steel is low? That whole idea and the result of that is that the railroad inevitably becomes the victim, and it as a whole is bound to suffer, because there is nothing that this country needs, requires and must have, more than the maintenance of an adequate and efficient system of transportation. No, the farmers' problems cannot be solved by taking money that justly belongs in the railroads' pockets out of their pockets and giving it to the farmers. There is always somebody standing around, ready to tell the farmer his trouble is due to high freight rates; but it is not due to anything of the kind.

A recent study by the Bureau of Railway Economics clearly discloses the relationship between freight rates and various farm commodities. It clearly disclosed that the price of wheat, at primary markets, has frequently fluctuated in the period of 24 hours more than the entire freight rate from certain points to those primary markets, with the result that one farmer, shipping his product today, with the price of wheat high, paying the full freight rate, gets more net for his wheat than another one shipping it tomorrow if it had been transported free of charge.

Seeking the Legislative Solution

Now, the farmer's plight has been a serious one, and he has had lots of trouble, but his troubles have not been due to high freight rates. I think I know what some of his troubles are. I haven't got time to tell about all of them tonight, but in my opinion the underlying trouble of the farmer has been that he is producing everything that he has to produce, and selling it under conditions when the unrestricted law of supply and demand is in operation—substantially so. There are a few exceptions to that. Some of these farmers' co-operative organizations have been efficient and effective instrumentalities, but in the main the great mass of the farmers of this country, and the great mass of agricultural production of this country, is marketed under conditions where the unrestricted law of supply and demand finds full play, and the things that he has to buy are bought in markets where artificial restrictions are thrown around the laws of supply and demand—for instance, by wage agreements, which are not based on the supply of labor, or the demand for it, but made matters of agreement between employers and employees.

Now, what the farmer needs to do is not to be eternally casting his eyes towards Washington. I am getting so awfully tired, every time any problem comes up in this country, of seeking a legislative solution of it at Washington. The conception of our American institutions is the right to life, liberty and the pursuit to happiness, according to a man's own free will, so long as he does not do any harm to his neighbor. It is not legislative relief that is needed, so much as awakening a direct sense of responsibility on the part of the individual to work out his own salvation, in company and in association with his fellows, and the relief of the farmer is going to come along the lines of co-operative activity. Let him take a leaf out of the book of the labor unions and the trade associations. Let him put up a solid front and make us pay for the things he has to sell, like we are making him pay for the things he has to buy.

The Pullman Surcharge

Now, while I am on the subject of direct legislation, I want to give another illustration—this so-called Pullman surcharge. I think that is the most unfortunate term that was ever employed to designate anything, to call that a Pullman surcharge. In reality it is a charge for a preferred service. It affects a comparatively small percentage of the total passenger travel of the country. And it means $40,000,000 a year to the railroads.

The question of the abolition of the Pullman surcharge was before the Interstate Commerce Commission, and after months of hearing that body decided adversely to it, whereupon representatives of commercial travelers' organizations undertake to get Congress to over-ride this body of experts. The commission had decided that the railroads needed this revenue; that it was a reasonable charge, and that if it was taken off, it would have to be supplied from some other source. The first move they made was to go to Washington to get Congress to over-ride the Interstate Commerce Commission. God

grant that Congress will have strength of character enough to decline to do any such thing. The Congressional Record disclosed that in the discussion of that matter the committee of the Senate which had reported that bill favorably, they were all apparently under the impression that this surcharge was collected for the benefit of the Pullman Company and paid over to that company. One grave Senator asked the Examiner whether it was true that the railroads were collecting this surcharge and turning it over to the Pullman Company, and if that were true, how could it be legal, since the charges of the Pullman Company were fixed under the tariffs that had been filed with the Interstate Commerce Commission?

That is the kind of treatment that these great questions which involve the life blood of the railroads of this country are likely to receive when it comes to direct legislation on transportation rates. It should be left precisely where it is, in the hands of the Interstate Commerce Commission, without political inter-meddling.

Rates

Now there is a great deal of talk about high freight rates. Freight rates are high, compared with what they were before the war, say in 1913 or 1914. Varying with the section, they are on an average from 40 per cent to 50 per cent higher, but why shouldn't they be higher, when everything that the railroads have to buy is from that percentage on up higher than the pre-war prices? When you say freight rates are high, it is a relative term. I think you can buy substantially as much transportation for a dollar as you can of nearly anything else.

Car Institute Addresses Aishton

Asks his co-operation in effecting curtailment of further expansion by roads of manufacturing facilities

THE American Railway Car Institute, on November 11, addressed a letter to R. H. Aishton, president of the American Railway Association, calling his attention to the serious effect of the present tendency of the railroads toward the expansion of manufacturing facilities on the future of the contract car builders. The letter sets forth reasons why the builders, whose plants represent an investment of approximately a half billion dollars, believe that the roads should avoid the further investment of capital in such plant facilities and why they should utilize the competitive contract plants already available, for the construction of new cars and for the rebuilding of old cars. The letter is signed by J. M. Hansen, chairman of the board, Standard Steel Car Company; W. H. Woodin, president, American Car & Foundry Company, and J. F. Macenulty, vice-president, Pressed Steel Car Company. Mr. Hansen is president and Messrs. Woodin and Macenulty, vice-presidents of the Institute. The full text of the letter follows:

Dear Mr. Aishton:

The continued expansion and enlargement of manufacturing facilities by the railroads, and the initiation by them of extensive programs both for the rebuilding and manufacture of equipment in their own shops have so materially affected the interests and so threatened even the future existence of the contract car builder, that the undersigned, as officers of the American Railway Car Institute, desire to bring to your attention—and through you to the attention of the railroads—certain important considerations bearing upon the matter, and to ask your co-operation in an undertaking to convince the railroads of the desirability of foregoing the further pursuit of these activities.

The investment in the car building plants of this country is approximately half a billion dollars; they employ normally seventy to eighty thousand men; they are located from coast to coast at points best suited to the needs of the railroads and to the availability of materials and labor; and they are owned by some fifty odd thousands of stockholders.

We believe that full consideration by the railroads of the far-reaching effects of their present tendency toward the development of manufacturing facilities of their own will impel them, in their own interests, to curtail their programs and to avoid the further investment of capital in plant facilities of this character.

Among the considerations which in our opinion bear upon the question, the following may be mentioned:

1. The elaboration of plant facilities by the roads complicates problems of organization and management; it multiplies the payroll, thereby involving the assumption of responsibility for ever increasing numbers of employees who cannot be steadily employed except at the price of high cost of output; it tends to deprive railroad managements of freedom of action by opening the door to fuller irresponsible control by labor; and it removes the building of railroad equipment from the field of competition where costs are necessarily kept at a minimum to a non-competitive field where the incentive for low costs is too remote to be effective.

2. Programs of railroad equipment building have always been subject to extreme fluctuations. If the railroads man their shops, for the peaks, their organizations will be top-heavy and extravagant under any other condition. If they man for the average conditions and call on the contractors during the peaks they make the contractors' business too sporadic to be economical. Peaks and depressions can be much more effectively handled in the contract shops than in the railroad shops because the contractor is free from most of the regulatory restrictions imposed upon the roads, and he is not subject to the widespread influences which often make it necessary for the roads, as matters of policy, to pursue courses which otherwise are economically unsound.

3. The qualifications for leadership in railroad organizations, and the training by which the leaders are developed, have to do with the conduct of transportation; not with manufacture. The management of railroad manufacturing establishments must therefore be delegated largely or entirely to minor officials and the responsible control is in the very nature of things remote and correspondingly ineffectual.

4. The car building plants were built up in response to the needs of the railroads for equipment, and because of this fact the railroads have a measure of responsibility to them so long, at least, as they remain prepared to serve. This responsibility, of course, reaches as far as the investors who have supplied the capital for these establishments, and even to the public.

5. The car building plants have, because of their availability and because of the efficient character of their organizations, rendered invaluable service to the railroads in every important emergency. During the war they provided equipment, under the most difficult conceivable conditions fast enough to meet every need, and at unit costs below those of other comparable articles of manufacture. In addition to supplying equipment

for domestic use, they supplied several hundred thousand cars, gun carriages, and other vehicles for our armies abroad and for our allies, and produced shells and munitions in abundance. Again, in the Shopmen's Strike of 1921, the car plants not only supplied the new equipment required, but rebuilt old equipment, with the result that the roads were at no time handicapped for lack of cars.

This plant capacity stands ready now to serve when the railroads need it; and the periods of such need have always been, and probably will always be, recurrent.

6. The car companies maintain organizations of experts and highly trained men—the outgrowth of long specialization upon one thing in a highly competitive field. These organizations are at the service of the roads, and they have been responsible for much of the progress made both in the design of equipment and in the development of methods for its economical manufacture.

7. If the railroads persist in developing their own manufacturing facilities, much of the investment in contract car plants will be destroyed. This is, of course, economic waste and cannot be justified unless it can be clearly shown that they can no longer render efficient service. Since there have been no changes in the fundamental economic conditions surrounding the two industries, such a demonstration is obviously impossible.

8. The car manufacturing companies sustain and foster many other industries, some directly related to the railroads and others not. The welfare of these industries is a matter of importance to the railroads and to the country.

9. The cost to the railroads of manufacturing and rebuilding their own equipment in their own shops is normally higher than in the well organized and responsible contract shops. In a number of cases in which direct comparisons have been made, this fact has been clearly established, and in no case has the reverse been established. The reasons for it are apparent:

(a) The contract shop has every possible incentive to keep costs at a minimum because the definite and direct benefits to the management and the owners depend upon it.

(b) The contract shops are free to contract for materials and to employ labor without regard to questions of reciprocal business or extraneous influences. In these essentially important respects they are open and competitive.

(c) They are deterred from charging the railroads more than a living profit above cost by the highly competitive nature of the business. Every contract for railroad equipment is keenly sought by a number of bidders, and the result is frequently the acceptance of business at cost or less. Further proof of this lies in the fact that the industry as a whole during the past five years does not show a net income equal to a fair return on the investment; and the roads themselves have to pay a fair return on the capital they invest in plants or deprive the operating revenue of an amount equal to it.

(d) The claim is often made by railroad officials that while the car builders can show easily lower direct labor and comparable materials costs, the overhead in the contract shops is higher than in the railroad shops. Whatever the precise facts may be, it is self evident that the rate of overhead is a function of efficient organization and equipment. Overhead is generated by two things: facilities and supervision. Within limits marked by the extent to which power may be substituted for manual labor and expert management for ineffectual leadership, the higher rate of overhead the more efficient is the result and the lower are the total costs. An anvil, hand hammer and charcoal forge may be operated at an overhead of five per cent; a power forge and a modern furnace may carry an overhead of three hundred per cent, but no one will question the inability of the hand hammer to compete with the power device no matter how skilled the operator. Any contractor could operate his plant on the 30, 40, or 50 per cent overhead, so often boasted by the railroad shopmen, but he would fail financially in so doing and so would such railroads if they had to depend upon shop operations for a living.

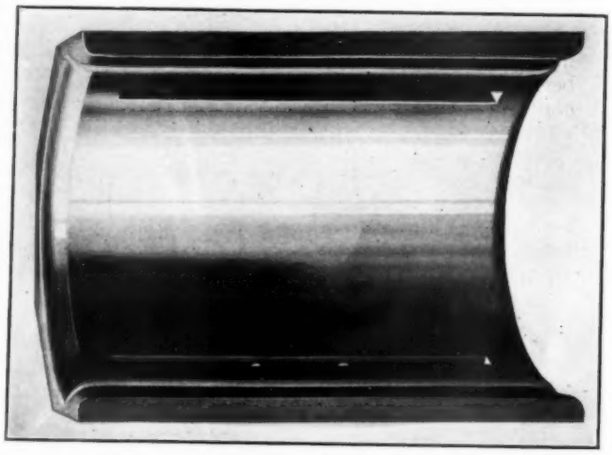
10. The railroads are chartered primarily to conduct transportation and to provide service for the communities they depend upon. There is valid doubt as to whether they should engage in manufacturing, as there has been doubt in the past as to their operation of coal, oil and other properties.

The foregoing is respectfully submitted for your consideration and that of your associates. We shall be grateful for any comments and for your suggestions as to how the matter might be further prosecuted to bring about the results sought.

J. M. HANSEN, president.
W. H. WOODIN, vice-president.
J. F. MACNULTY, vice-president.

Side Oiling Engine Truck and Trailer Bearing

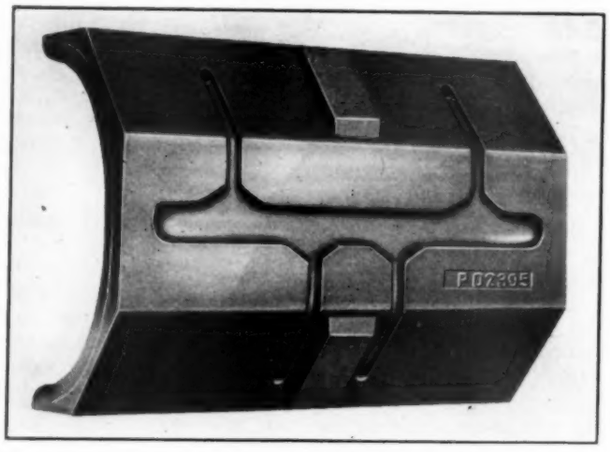
TESTS have indicated that free oil cannot be introduced through the top of an engine truck or trailer bearing in operation, and that a recess or chamber in the top of an engine truck or trailer bearing will not effectively feed oil back to the bearing. For



The Inside of the Self-oiling Engine Truck and Trailer Bearing

that reason, the engine truck and trailer bearing shown in the illustrations has oil canals on the back of the bearing, carrying the lubricant over, so that it will enter the recess or chambers provided on the sides of the bearing, below the point of high oil pressure at the top of the bearing.

If free oil is required, it is because the bearing receives insufficient lubrication from the packing, under



The Channels for Oil on the Rear Side of the Bearing Conduct the Lubricant to the Interior Oil Grooves

which conditions a rise of temperature in the bearing will take place.

The expansion of the bearing will increase the pressure of the load in the center, but decrease the pressure on the sides, allowing the free oil to feed under the surface.

General News Department

The Railway Club of Pittsburgh will hold its next meeting at the Fort Pitt Hotel, November 29, when E. S. McClelland, director of personnel, Westinghouse Electric & Manufacturing Co., will read a paper on "Management Problems."

The Central Railway Club will hold its next meeting in Buffalo at the Hotel Statler, December 9, when W. F. Jordan, engineering assistant to the president of the New York Central, will read a paper on "Terminal Improvements at Buffalo."

The Union Pacific has granted wage increases of approximately two cents an hour to 12,000 shop employees and 2,000 miscellaneous workers, including mostly trackmen, linemen, mechanics and helpers. The shopmen's increase will be effective December 1 and those for other employees January 1.

The Supreme Court of the United States, in a decision rendered on November 22, reversed the decision of a lower court which had held invalid an order of the Interstate Commerce Commission requiring the New York Central to perform transportation service in connection with the Erie basin terminal of the New York barge canal at Buffalo, N. Y.

Louis J. Smith, engineman of a Chicago & North Western passenger train, which on September 6 ran into the rear of another passenger train at Clybourn Junction, Chicago, causing the death of 5 persons and the injury of 50 others, was held for the grand jury on five charges of manslaughter; but the grand jury, on November 18, voted no bills on each charge.

Veteran Employees' Associations on the Pennsylvania now number 42, with a total membership of 45,000. The association at the general office, Philadelphia, which was organized in 1921, now includes practically every employee and officer in the general offices who is eligible, about 2,100. The Association takes in all who have been in the service of the company 21 years or more. The general office association held its sixth annual banquet on Thursday evening, November 18.

The Railway and Locomotive Historical Society, 6 Orkney road, Brookline, Mass., has issued its Bulletin No. 12, a 50-page pamphlet, containing notes on the recent anniversary celebrations of the New York, New Haven & Hartford and the Missouri Pacific; on locomotives at Purdue University; early days of the Iron Horse in North Carolina, and other data on locomotive history. A 10-page article by Inglis Stuart gives details of the history of the New York, New Haven & Hartford sixty years ago.

The National Fire Protection Association, through its committee on protection of records, has issued a 40-page pamphlet containing all of the reports of that committee presented during the last four years; a consolidation of numerous specifications and other matter, some already officially adopted, setting forth the standards of the Association relating to safes, vaults and other structures, regulations for the arrangement of records, and other valuable material. Copies of the pamphlet may be had from the Association, 40 Central street, Boston, Mass., at 40 cents each; or at lower prices for large quantities.

According to an announcement by Postmaster General New, the United States mails were carried over 229,280 miles of railroads during the fiscal year ended June 30, 1926, at a cost of $106,656,368. The mails were carried over 8,205 miles of electric railroads at a cost of $698,647, while service by power boats was maintained over 46,871 miles at a cost of $1,420,068. On June 30, last, the aggregate length of star routes operated in the United States was 169,258 miles, the cost of such service to the government being $12,935,000. At the end of the fiscal year there were in operation 4,685 railway postoffice trains, covering 203,546 miles of railway postoffice service, with 268,993,322 miles of annual travel. There was a total of 20,411 officers and employees of the railway mail service at the end of the year, a decrease of 1.36 per cent of the total as compared with the year previous. The cost of this service was $52,874,740.25.

No Sign of Settlement in Canadian Wage Controversy

No sign of settlement in the dispute between the Canadian trainmen and the railway managements has appeared in the last week.

The men took a vote on rejecting the award of the arbitration board, and this vote was completed on November 22 and announcement of the result will be made shortly. If the decision is in the negative a strike may result, and there appears little or no doubt but that it will be so. Present indications are that the enginemen and firemen will not play any part in the contest.

Railroad Coal in September $2.59

The average cost of railroad fuel coal in September was $2.59 per ton, as compared with $2.66 in September last year, according to the Interstate Commerce Commission's monthly statement of railroad fuel statistics, covering fuel for road locomotives in freight and passenger train service. The average cost of fuel oil was 2.97 cents a gallon, as compared with 3.18 cents in September last year. For the nine months ended with September the average cost of coal was $2.61, and the average cost of oil was 2.92 cents. The total cost of coal and fuel oil for the nine months was $236,072,343, as compared with $240,523,945 in the corresponding period of last year.

B. & M. Employee-Stockholders

Employees of the Boston & Maine Railroad are now stockholders in the company to the number of about 1,000, as a result of the plan by which they have bought new seven per cent prior preference stock. Employees in all departments have bought shares. Employee subscriptions were limited under the offering. About $300,000 has been invested by employees, in addition to such stock as they may have owned previously.

The plan provides for buying shares on the installment plan with deductions from the payroll at the rate of $2 per share monthly, and the payments will require 44 months. Employees are protected against any unforeseen shrinkage in the market value of the stock during the installment period, by provisions for cancellation.

Grade Crossing Accident Results in Two on the Rails

The driver of an automobile who carelessly attempted to cross the track ahead of a train on the Louisville & Nashville, at Hendersonville, Tenn., 16 miles north of Nashville, on Tuesday evening, November 16, not only caused the death of himself and his companion, but also derailed a fast train, the "Pan-American" (southbound express No. 99), and the derailment was followed by a collision of trackmen's motor cars, which had been ordered to the relief of the passenger train, killing four and injuring eight trackmen.

The express train was running at high speed, and the engineman said afterward that he did not see the automobile until after it had been struck and he noticed the wrecked car flying through space. No person on the train was killed, and but few were injured.

From Mitchellville, 45 miles north of Nashville, a crew had been ordered to proceed on its motor car to the scene of the wreck, and another crew had been ordered out at Fountain Head, six miles nearer Nashville; but for some reason, this last named crew, on its motor car, was moving northward and

the two cars collided near Portland. Among the killed were J. B. Ashworth, foreman of the Mitchellville crew.

Arbitration Board Adjourns

The arbitration board which has been holding closed sessions in consideration of the wage requests of trainmen and conductors employed by eastern railroads since the close of the hearing, November 12, in New York, has adjourned until November 30. The board has been meeting in New York and, following the adjournment, Edgar Clark, former interstate commerce commissioner, and chairman of the board, left for Washington. It is believed that the board has reached a decision in the matter and that the chairman has gone to Washington to prepare the statement of the board with relation to its position in the case. The board has until December 12 to issue its opinion.

Pennsylvania Limited's Birthday

The Pennsylvania Limited, 22-hour train between New York and Chicago, has now been in service 45 years, having made its first trip on November 19, 1881. The Pennsylvania was the first road to put on such a train between New York and Chicago, and it is said that this one has never missed a trip; that is to say, has completed 32,870 one-way trips. In 1881, the train had hotel cars—cars with berths and drawing rooms and also facilities for serving meals. Regular dining cars were introduced one year later. The observation car was added to the train in 1889. In 1891, vestibule cars were introduced, and in that year the exterior of the cars was painted English fashion, dark green below the window sills and cream color above. This train has consisted wholly of steel cars since 1907.

A. A. A. Campaign Against Unprotected Grade Crossings

The American Automobile Association is urging a national concerted effort to safeguard the lives of motorists at unprotected grade crossings. With 43 legislatures scheduled to meet during the coming winter, the matter of a constructive program relative to the grade crossing evil should be placed in the foreground. "I am convinced in my own mind," says President T. P. Henry, "that we are lagging behind in protective measures. Men, women and children cannot be valued in dollars and cents, but I believe that the cold figures of an insurance actuary would sustain the position taken by the A. A. A., namely, that it would pay every state in the Union to have a program and a budget looking to the ultimate elimination of dangerous grade crossings, even as a measure for saving the wealth of human life destroyed.

"The time has come for action. Placards and posters of an educational character are not enough. The picture of a reckless driver trying to beat a railroad train to a grade crossing may be all very well for the comic strips, but as a matter of fact, the number of people who try to beat the train is very small, and the great majority of the people who get killed are simply caught in a death trap. Our ultimate aim must be to eliminate the grades, at least, the most dangerous of them.

"No one expects the railroads to shoulder the entire cost, which would be tremendous. The general public must doubtless be prepared to share a part of the burden. New York state has set a good example in the bond issue adopted for the purpose of doing away with grades. The great trouble at the moment is that new grades are overtaking us at as great a rate as the old ones are being removed. We are still in a vicious circle. The fact that it would require time and money is not an excuse for failure to give the maximum of protection at the grades now existing, nor is it an excuse for the creation of additional dangerous ones."

DIVISION No. 287 of the Brotherhood of Locomotive Engineers, at its meeting at Altoona, Pa., on the evening of November 17, conferred gold medals on ten members of the lodge who had held that relationship for 40 years. The ten, all connected with the Pennsylvania Railroad were: J. H. Riple, S. K. Hart, Charles Casey, J. H. McCartney, W. L. Fleck, T. J. Masterson, Wm. Ronan, L. C. Johnson, J. P. Harney and J. E. Shaffer. Some of these men have been retired from active service for several years. One of them, S. K. Hart, is road foreman.

Traffic News

Freight Traffic for September and Nine Months

The volume of freight handled by the railroads in September was the greatest for any month on record, according to reports compiled by the Bureau of Railway Economics. The total was 44,328,177,000 net ton miles, which exceeded by six-tenths of one per cent the best previous record, established in October, 1925. This was an increase of 3,023,550,000 net ton miles, or 7.3 per cent over September last year and an increase of 5,263,815,000 net ton miles, or 13.5 per cent, over the same month in 1924.

In the Eastern district there was an increase of 15.7 per cent, but the Southern district showed a decrease of one per cent. The Western district reported an increase of 2.6 per cent.

The railroads also handled a record traffic during the first nine months this year; 356,854,042,000 net ton miles, an increase of 13,040,025,000 net ton miles, or 3.8 per cent, over the previous high record for the first nine months, established in 1923. It was also an increase of seven per cent over the corresponding period in 1925, and 13.9 per cent over 1924.

For the first nine months' period the railroads in the Eastern district showed an increase of 8.3 per cent, the Southern district 7.7 per cent, and the Western five per cent.

New Haven Football Traffic

The number of passengers carried to and from New Haven, Conn., over the New York, New Haven & Hartford on Saturday, November 20, on the occasion of the Harvard-Yale football game, was 50,387, or 250 greater than the number carried to the same game two years ago. Other figures given out by the road show: total number of passengers carried in 1914, to and from the Harvard-Yale game, 66,795; total number of extra football trains run this year, 88; busiest time at New Haven, 5:37 p. m. to 6 p. m.; 19 trains sent out in 23 minutes. From 4:36 p. m. to 7:31 p. m. (two hours, five minutes) a train was sent out every three minutes, 18 seconds, average. The number of passengers between New York and New Haven this year was 4,284 greater than two years ago, but between Boston and New Haven there was a decrease of 4,031.

Officers of the road reported complete freedom from mishaps, and that all the special trains, except one, arrived at destination on time. They believe that in view of the rainy weather two years ago, as compared with the good automobiling weather this year, that the small gain in total number of passengers represents a distinct trend toward the use of railroad trains in order to avoid congested highways and parking difficulties.

Montreal Board of Trade Does Not Want Canadian Rate Basis Upset

The Montreal Board of Trade has forwarded to the Dominion Railway Board at Ottawa a memorandum stating its position on the general freight rate question to be dealt with finally by the Railway Board at a hearing in Ottawa on November 30. The statement follows:

"The foundation of the present freight rate structure in Canada was laid many years ago and is the result of the best efforts of our railway executives, who had in mind not only the interest of the railways, but also the development of the country, its industries and natural resources, coupled with over twenty years' labor on the part of our Railway Commission, which changed and altered the rates in territories and localities as changes in conditions and circumstances warranted.

"For rate-making purposes, Canada is divided into three great sections—Eastern Canada, that portion lying east of the Great Lakes, the prairie section, lying west of Fort William to the Rocky Mountains, and the Pacific section, through the mountains to the Pacific Ocean. Each differs in character of traffic.

"The Eastern section is served by navigable waters and its rail rates are affected, not only by this factor, but also by the competition of United States railways. A heavy percentage of its traffic is the output of industrial activities, furnishing a high-class tonnage which pays relatively high rates.

"The prairie section, a vast plain without navigable waters, produces a high percentage of low-class traffic, such as grain and livestock, and a low percentage of merchandise of the higher classes.

"The Pacific territory, on the other hand, is mountainous, without navigable streams, and the great bulk of its traffic is the product of mines, forests and fisheries, a low rate class of traffic.

"In a vast country like Canada, stretching from the Atlantic to the Pacific, with railways from Sydney, N. S., to Prince Rupert and Vancouver, B. C., there are bound to be unequal conditions as regards almost every factor involved in the making of a railway rate, such as density of traffic and population, water and other competition, cost of operation, location of natural resources and markets, etc. It is the opinion of the council that it is impossible, by any system of rate making, to equalize unequal things.

"The council of the Montreal Board of Trade, therefore, respectfully directs the attention of the commission to the danger of upsetting the rate structure built up over a long period of years, under which the various sections of the country and its natural resources and industries have been developed. Changes in railway rates should be made in the future as they have been in the past, only for the purpose of developing to the greatest possible degree the existing and potential resources of the Dominion, both in manufactured goods and natural products, and should be designed to add to our prosperity by way of wealth, employment and population and the conservation of the railways' revenues."

A New Record for Daily Car Mileage

The daily average movement of freight cars in September was 32.7 miles, the highest average ever reported for any one month, according to reports compiled by the Bureau of Railway Economics. This exceeded by one-half mile the best previous record, October last year, 32.2 miles. The average for September this year was an increase of 1.9 miles over that of September last year and an increase of 3.9 miles over September, 1924.

The average load per car in September was 27.3 tons, an increase of one-half a ton over that for September last year and an increase of three-tenths of a ton above the same month in 1924.

The total output of bituminous coal for the week ended November 13 is estimated by the Bureau of Mines at 13,756,000 net tons, a new high mark in the history of bituminous coal production, in spite of a partial observance of the Armistice day holiday on November 11. The total production for the present calendar year to November 13 amounts to 487,759,000 net tons.

The Allegheny Shippers' Advisory Board will hold its first regular business meeting at the William Penn Hotel, Pittsburgh, Pa., on December 17.

The Interstate Commerce Commission concluded its hearings in the investigation into the receivership of the Chicago, Milwaukee & St. Paul at Chicago on November 18. H. B. Earling, western representative for the receivers, presented figures to show that the St. Paul's Oriental import and export business at Seattle, Wash., and Tacoma, began to decline following the opening of the Panama Canal. In 1924, he said, the road handled 75,276 tons of freight at these points as compared with 42,656 tons in 1925. Other witnesses to testify were L. W. Sprattlen, assistant to the receivers, and W. V. Wilson, controller. The date for the hearing of oral arguments at Washington will be announced later.

The Chicago & Eastern Illinois announces a new train between Chicago and Jacksonville, Fla., following a reduction in the schedules of the Dixie Flyer and the Dixie Limited which run between Chicago and Miami, Fla. The new train, known as the Dixie Express, leaves Chicago at 9:50 p. m. and arrives in Jacksonville at 8 o'clock the second morning. Returning, it leaves Jacksonville at 9:10 p. m. and arrives in Chicago at 7:55 a. m. The Dixie Flyer and the Dixie Limited have been re-equipped and are now all-Pullman trains. The Flyer leaves Chicago at 9:45 p. m., as previously, and arrives in Miami at 5:50 p. m. the second day, instead of 8 p. m., and returning leaves Miami at 11 a. m. instead of 8:15 a. m., and arrives in Chicago at 7:45 a. m., as previously. The Dixie Limited now leaves Miami at 8:50 p. m. instead of 8:15, and arrives in Chicago at 4:10 p. m., as previously.

Commission and Court News

Interstate Commerce Commission

The commission has postponed the hearings before Examiner Keeler in connection with its rate structure investigation, part 4, petroleum and products, to January 5 at Pittsburgh and January 10 at New York.

Iron and Steel Rates to be Investigated

The Commission has instituted an investigation of rates on iron and steel articles by assigning the subject for hearing in its general rate structure investigation, part 6. No decided cases relating to rates on iron and steel articles have been reopened but the commission's notice states that this will not preclude it from reaching conclusions different from those determined in prior cases if such action seems warranted. In order to perfect plans and handle the proceedings as expeditiously as possible, a preliminary conference will be held at New York on December 4 with representatives of state commissions, shippers and carriers. The times and places for hearings will be announced hereafter.

State Commissions

The New York Public Service Commission has announced a further list of public hearings looking to the elimination of grade crossings. Hearings on 28 individual projects will be held in Buffalo, Batavia and Warsaw on December 7, 8, 9 and 10; and on numerous others at Dunkirk, December 13 and 14; Salamanca, December 15 and 16; Jamestown, December 15; Utica, December 17; Millerton, December 21, and Kingston, December 22.

Court News

Injuries from Defective Stock Gap

The Alabama Supreme Court holds that a railroad which permits grass to grow under or over a stock gap so as to obscure or conceal the spikes or signals of warning is negligent and liable for injuries to stock going on or over the gap.—Southern v. Popejoy (Ala.) 107 So. 809.

Whether Traveler Looked and Listened Not for Jury

The Mississippi Supreme Court holds that an instruction in a crossing injury case which permitted the jury to find that the person injured stopped, looked and listened should not be given when it was clear from the evidence that if he had looked and listened he must have seen and heard the train.—Illinois Central v. Mann (Miss.) 106 So. 7.

Not Liable Where Automobile Skids on Ice

The Montana Supreme Court holds that the failure to sound bell or whistle of an engine approaching a crossing, as required by Mont. Rev. Code 1921, §6521, was not the proximate cause of a truck colliding with the side of the engine where, after the truck's brakes were applied, it skidded several feet on the icy planking.—Stroud v. C. M. & St. P. (Mont.) 243 Pac. 1089.

Damages for Loss of Business While Truck Is Being Repaired

The Florida Supreme Court holds that a plaintiff, suing for damage to a truck used in his business, could not recover damages for loss of business while the truck was out of use, though he might recover the rental of a substitute truck while the damaged truck was being repaired, provided he was free from contributory negligence.—A. Mortellaro & Co. v. A. C. L. (Fla.) 107 So. 528.

Equipment and Supplies

Locomotives

THE BALTIMORE & OHIO has ordered 20 Pacific type locomotives from the Baldwin Locomotive Works.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 25 Mikado and 10 Mountain type locomotives.

THE LOUISIANA & ARKANSAS has ordered two Decapods type locomotives from the Baldwin Locomotive Works.

THE ATCHISON, TOPEKA & SANTA FE has ordered nine 4-8-4 type locomotives from the Baldwin Locomotive Works. This is in addition to the 41 locomotives ordered from the same builder and reported in the *Railway Age* of November 20.

THE PENNSYLVANIA has ordered 75 Class K-4 locomotives from the Baldwin Locomotive Works. These engines will be used in general passenger service, particularly on limited trains. The inquiry was reported in the *Railway Age* of November 13.

Freight Cars

THE WINSTON-SALEM SOUTHBOUND is inquiring for 10 caboose cars.

THE ATLANTIC COAST LINE is inquiring for 100 ballast cars of 50 tons' capacity.

THE CHICAGO & NORTH WESTERN is inquiring for 250 ore cars of 70 tons capacity.

THE PACIFIC FRUIT EXPRESS has ordered 600 underframes from the Pacific Car & Foundry Company.

THE LEHIGH VALLEY is inquiring for 500 hopper cars of 70 tons capacity and 200 automobile cars of 50 tons capacity.

THE NORFOLK & WESTERN contemplates buying 2,000 all-steel hopper coal cars of 70 tons capacity and building 250 all-steel box cars and 25 caboose cars in its Roanoke shops.

THE WESTERN MARYLAND has ordered 500 hopper car bodies of 50 tons capacity, from the Bethlehem Steel Company. The Western Maryland contemplates making repairs to 1,000 hopper cars in its own shops.

THE NEW YORK CENTRAL has ordered 20 automatic steel dump cars of 30 cu. yd. and 50 tons capacity from the Magor Car Corporation. In the *Railway Age* of October 30 this company was reported as inquiring for 60 cars.

Passenger Cars

THE NORFOLK & WESTERN contemplates buying 3 all-steel dining cars.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 5 dining cars, 10 coaches, 40 suburban cars, 4 combination baggage and smoking cars, 4 combination baggage and mail and 10 baggage cars.

Machinery and Tools

THE NEW YORK CENTRAL has ordered a 12-ft. pneumatic plate flanging clamp from the Niles-Bement-Pond Company.

Signaling

THE WABASH has ordered from the Union Switch & Signal Company, a Saxby & Farmer interlocking for the crossing of the Wabash and the New York Central at Britton, Mich.; 33 working levers.

Supply Trade News

Charles E. Coles has been appointed representative of the **Acme Steel Company**, Chicago.

The Case Crane & Engineering Company, Columbus, Ohio, has changed its name to the **Case Crane & Kilbourne Jacobs Company.**

Henry L. LaBarge has been appointed manager of railway sales of the **Glidden Company**, with headquarters at Cleveland, Ohio.

R. B. Arnold, formerly general signal inspector of the Chicago & North Western, with heaquarters at Chicago, has been appointed sales engineer with the **E. A. Lundy Company**, with headquarters at Chicago.

J. B. Weigel, formerly general interlocking supervisor of the Seaboard Air Line, has been appointed a representative in the railroad materials division of the **Ohio Brass Company**, with headquarters at Mansfield, Ohio.

P. B. Bird, president of the **Bird-Archer Company**, New York, is recovering from a serious operation at his home in Summit, N. J. Mr. Bird, who has been incapacitated for the past year, expects to resume his business activities on January 1.

The Ohio Brass Company, Mansfield, Ohio, has established new quarters for its San Francisco, Cal., branch office in the Matson building, 215 Market street, and new quarters for its Los Angeles branch office in the Subway Terminal building, 417 S. Hill street.

Burton L. Delack, assistant manager of the Erie, Pa., works of the **General Electric Company**, has been appointed assistant manager of the Schenectady, N. Y., works, effective December 1. **John St. Lawrence**, general superintendent at Erie, succeeds Mr. Delack.

The Botfield Refractories Company, Philadelphia, Pa., has appointed the following representatives: **The Curtis Supply Company, Inc.**, Buffalo, N. Y.; the **Waldredh Supply Company**, Des Moines, Iowa; the **South Side Foundry & Machine Works**, Charleston, W. Va., and the **Empire Machinery & Supply Corporation**, Norfolk, Va.

George A. Secor, representative of the **Buda Company**, with headquarters at Chicago, has been appointed district sales manager, with headquarters at St. Louis, succeeding **L. O. Stratton**, transferred to the western territory. **Porter L. Laughlin**, formerly district sales manager of the Verona Tool Works, with headquarters at Chicago, has been appointed representative of the Buda Company, with the same headquarters.

W. H. Moyer has been appointed manager of the railroad division of the **Chipman Chemical Engineering Company, Inc.**, Bound Brook, N. J., and **H. B. Crocker** has been appointed assistant manager, railroad division in charge of application and phytocidal research. Mr. Crocker has been identified with weed killer research matters for many years through his connection with the chief chemist's office of the Atchison, Topeka & Santa Fe.

W. P. Steele, accessory sales manager of the **American Locomotive Company**, has resigned. Mr. Steele's career began in 1880 on the Boston & Maine. In 1901 he entered the employ of the Galena-Signal Oil Company, resigning in 1906 to become assistant to vice-president of the American Locomotive Company. In 1912, he was promoted to assistant to president; in 1917, Chicago representative, and in 1919, sales manager of Alco accessories, which position he held at the time of his resignation.

The Portland Cement Association at its annual meeting at the Drake Hotel, Chicago, on November 18, elected the fol-

lowing officers: President, **G. S. Brown,** president of the Alpha Portland Cement Company, Easton, Pa.; vice-presidents, **E. M. Young,** president of the Lehigh Portland Cement Company, Allentown, Pa., and **Robert B. Henderson,** president of the Pacific Portland Cement Company, San Francisco, Cal.; and treasurer, **J. W. Boardman,** vice-president of the Huron Portland Cement Company, Detroit, Mich.

Frank W. Hamilton, associated with several New York business men, has purchased the interests of Cadwallader R. Mulligan in the **Ulster Iron Works,** at Dover, N. J. Mr. Hamilton, formerly vice-president and general manager, is now president of the company, succeeding John Mulligan, deceased. **Henry T. Bradley,** formerly manager of sales, is vice-president. **John D. B. Vreeland** will continue as secretary and treasurer. **E. W. Kavanagh,** associated with the sale of Ulster products for several years, has been appointed sales manager. The Ulster Iron Works was established at Saugerties, N. Y., in 1827. In 1863 William Mulligan assumed the management, and with him was associated his brother, Cadwallader R. Mulligan. The latter in 1883 took over the management of the Dover Iron Works at Dover, N. J., and one year later he moved the business of the Ulster Iron Works, which had outgrown the facilities at Saugerties, to Dover. Later the firm name was changed to Ulster Iron Works, Incorporated, and John Mulligan became the president, holding the office at the time of his death, which occurred last May. The new management will continue the business under the same name and without change in its policy.

Arthur C. Dunne, sales engineer of the **Chicago Railway Signal & Supply Company,** has been promoted to resident manager effective December 1, with headquarters in the Peoples Gas building, Chicago. Mr. Dunne was born in Prairie du Chien, Wis. His first signal work was with the construction forces of the Federal Signal Company. In 1909 he was appointed assistant to the western sales manager, which position he held until 1913, when he was appointed assistant superintendent of construction. In 1914 he resigned to become sales engineer of the Chicago Railway Signal & Supply Company. At the time the United States entered the World War, Mr. Dunne was commissioned a lieutenant in the Signal Corps and upon his honorable discharge from the service he resumed his former duties with the Chicago Railway Signal & Supply Company, which position he held until his recent appointment.

A. C. Dunne

Trade Publications

PORTABLE ELEVATOR.—The Revolvator Company, 336 Garfield avenue, Jersey City, N. J., describes in bulletin No. 99-D worm gear drive, electric portable elevators. Dimensions are given for standard revolvators with both revolvable and non-revolvable bases.

SIMPLEX COALING STATIONS.—In a 20-page catalog No. 85, the Roberts & Schaefer Company, Chicago, presents an illustrated treatise on its latest development in locomotive coaling plants covering such features as the Simplex roller skips, Simplex loaders, Rands coaling gates and aprons, and automatic electric hoists. The illustrations feature concrete stations with cylindrical storage tanks of various capacities as arranged for serving coal to locomotives on from one to six tracks.

Railway Construction

ATLANTA & ST. ANDREWS BAY.—A survey is in progress for the construction of a line between Dothan, Ala., and Columbus, Ga., 100 miles.

CANADIAN NATIONAL.—The construction of a new passenger station at Edmonton, Alta., is contemplated by this company.

CANADIAN NATIONAL.—A contract for the construction of a station at Armstrong, Ont., has been awarded to J. H. Simmonds, Winnipeg, Man.

COWLITZ, CHEHALIS & CASCADE.—A contract has been awarded for the construction of an extension between Lacamas, Wash., and Cowlitz, 14 miles, at a cost of about $467,000.

DENVER & RIO GRANDE WESTERN.—Construction of a passenger station at Durango, Colo., is contemplated.

EL ORO MINING & RAILWAY.—A contract has been awarded for the construction of a line between Palizada, Mex., and Salitre.

FORT WORTH & DENVER CITY.—Surveys have been completed for extensions between Estelline, Tex., and Dimmitt, 132 miles, and between Silverton, Tex., and Lubbock, 70 miles.

GEORGIA & FLORIDA.—A survey has been completed for the construction of a line between Augusta, Ga., and Greenwood, S. C., 56 miles.

GREAT NORTHERN.—The elimination of several curves and the construction of a 350-ft. trestle in Scotia Canyon between Camden, Wash., and Scotia, has been authorized. Including the boring of an 800-ft. tunnel, the project will involve an expenditure of about $240,000. Track changes at Irby, Wash., to eliminate two bridges over Crab creek at an estimated cost of $53,000 have been authorized, with construction to be carried out by company forces.

ILLINOIS CENTRAL.—This company contemplates the construction early in 1927 of improvements at Gulfport, Miss., to cost about $51,000, including a warehouse 50 ft. by 100 ft. in size, additional pier trackage facilities and extension of the fire protection equipment.

PORT ANGELES WESTERN.—A location survey has been completed for the construction of a line between Lyn Lake, Wash., and Forks, 9 miles.

SKAGIT RIVER.—A contract has been awarded to the Morrison Knudson Company, Boise, Idaho, for the construction of a line 4.3 miles in length between Gorge Creek and Diablo Canyon near Seattle, Wash., to cost about $243,400. This includes construction of four wooden Howe truss bridges.

SOUTHERN PACIFIC.—A contract has been awarded for the construction of a steel and concrete fruit warehouse at New Orleans, La., 53 ft. by 370 ft. which with necessary trackage will involve an expenditure of $165,500.

ST. LOUIS-SAN FRANCISCO.—A contract for grading, bridging and drainage of 57 miles of line between Aberdeen, Miss., and Aliceville, Ala., a portion of the proposed extension from Aberdeen to Kimbrough, Ala., 152 miles, has been awarded to Ross Wogan & Co., Kansas City, Mo. The construction of this portion of the line involves an expenditure of about $750,000.

ST. LOUIS, TROY & EASTERN.—This company has under survey a line 1.53 miles long between the McKinley bridge at St. Louis, Mo., and its own line.

WEYERHAUSER TIMBER COMPANY.—This company contemplates the construction of a logging line in Thurston County, Wash., at a cost of about $500,000 to provide an outlet to timber holdings along the upper Skookum Chuck River.

Railway Financial News

ATLANTIC COAST LINE.—*Extra Dividend.*—Directors have declared an extra dividend of $1.50, payable with the regular semi-annual dividend of $3.50 on the common stock on January 10 to stock of record December 17. The company has been paying regular dividends at the rate of 7 per cent on this issue since 1917. It paid an extra 1 per cent in July, 1924, also in July, 1925, and in 1926 there was an extra of 1 per cent in January and of 1½ per cent in July, making the total dividends for the year, excluding the latest disbursement which is not to be paid until January, of 9½ per cent.

To Issue Stock.—A special stockholders' meeting has been called for December 13 at Richmond to vote on recommendations made by the directors for a $24,000,000 increase in the common capital stock and an immediate offer to stockholders of $13,756,500 of the stock at $100 a share on the basis of one share of new stock for each five shares now owned. The total amount of stock authorized by the stockholders is at present $76,000,000, of which $68,782,900 has been issued and by the charter the total amount of capital stock that may be authorized is $100,000,000.

CHESAPEAKE & OHIO.—*Control of Chesapeake & Hocking Authorized.*—The Interstate Commerce Commission has authorized this company to acquire control of the Chesapeake & Hocking by purchase of its capital stock. The Chesapeake & Hocking also was authorized to issue $70,000 of common stock, to be sold to the C. & O., and $12,500,000 of promissory notes, the proceeds to be used for the construction of the line from Gregg to Valley Crossing, Ohio.

CHESAPEAKE & OHIO.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the Chesapeake & Hocking, which was recently authorized by the commission to build a line from Gregg to Valley Crossing, Ohio.

CHICAGO, MILWAUKEE & ST. PAUL.—*Foreclosure Sale.*—This company was sold at public auction at Butte, Mont., on November 22 to Robert T. Swaine and Donald C. Swatland representing the re-organization managers, Kuhn, Loeb & Co. and the National City Company of New York, at $140,000,000. The bidders assigned their bid to the Chicago, Milwaukee & Pacific Railroad Company which will be the new name of the property upon its re-organization.

New Company.—The Chicago, Milwaukee & Pacific Railroad Company has been organized under the laws of the State of Delaware as the successor company of the bankrupt Chicago, Milwaukee & St. Paul Railway.

A statement issued by the re-organization managers follows:

"The name Chicago, Milwaukee & Pacific Railroad Company was selected as being more descriptive of the property than the old name and because the public generally has not always realized that it was a transcontinental railroad running to the Pacific Coast.

"It is planned, in case the successful bid is made under the reorganization plan, immediately to asign the bid to the new company and to have the new company forthwith apply to the court for confirmation of the sale. After the necessary court proceedings the company will apply to the Interstate Commerce Commission for authority to take over and operate the property and to issue new securities contemplated by the plan. It is hoped that such application can be made by the first of the year."

Court Proceedings.—A petition filed by the Jameson committee of bondholders with Federal Judge James H. Wilkerson on November 17 asking for a delay in the foreclosure sale of the Chicago, Milwaukee & St. Paul to be held at Butte, Montana, on November 22, was taken under advisement, Judge Wilkerson refusing to pass upon the petition at once. This is the second attempt on the part of the Jameson group to have the sale postponed. The petition was later denied.

Mr. Jameson announced on November 18 that he would not offer a bid at the sale at Butte, Mont., on November 22. He issued a statement reading as follows:

"The committee has been unable to secure a modification of the terms of the decree of sale so as to make real competitive bidding on separate parcels possible, particularly on the property mortgaged to secure the refunding bonds and that portion of the unpledged assets especially useful in connection with the operation of such property.

"The committee has also been unable to secure sufficient time for the completion of an adequate expert examination of the property and operating conditions on which bankers with whom we have been in consultation could act intelligently. Although we employed John F. Stevens as soon as the date of sale was announced and he has made an examination and tentative report, he advises us that the time was too short to permit of anything more than a cursory examination.

"Under such circumstances, the committee has been advised by counsel to stand upon its legal rights. No court has yet passed on the question whether bondholders can be deprived of the lien of their mortgage without their consent for the benefit of stockholders, and the committee will continue its fight if necessary until it has secured the decision of the United States Supreme Court on that and other questions equally important to the security and stability of investments.

"Counsel for both trustees and reorganization managers have given assurances in open court that non-depositing bondholders will be allowed at least three months after the entry of an order confirming the sale to deposit their bonds, so that they need not be disturbed by notices designed to create the impression that bonds will have to be deposited at an earlier date to avoid penalties."

Interstate Commerce Commission Hearings.—At the hearings of the Interstate Commerce Commission investigation of the affairs of the Chicago, Milwaukee & St. Paul which were resumed at Chicago on November 15, following the testimony of Leroy J. Binkley and reported in last week's issue of the *Railway Age.*

Errol DeLauney, examiner for the bureau of accounts of the Interstate Commerce Commission, submitted a financial report on the Inter-Mountain Power Company which furnishes power for the electrified section of the St. Paul. His testimony showed that stock of the Inter-Mountain Power Company owned by three officers in the Montana Power Company, was sold to the Washington Power and Light Company in 1922. His testimony in general dealt with the methods of accounting employed by the Inter-Mountain Power Company and the manner in which the company charges off depreciation. A. F. Brevillier, an examiner for the bureau of accounts of the Interstate Commerce Commission, testified that John D. Ryan has been president of the Montana Power Company since its organization in 1912 and was a director of the St. Paul from 1909 to 1921. His report showed that the Ryan family owned 8.2 per cent of the outstanding preferred stock of the Montana Power Company at the end of 1913, 1.2 per cent at the end of 1918, and 4.3 per cent at the end of 1925. Of the outstanding common stock, the Ryan family owned 2.4 per cent at the close of 1913, 7.8 per cent at the close of 1918 and 5.4 per cent at the close of 1925. From 1913 to 1925 inclusive, John D. Ryan received dividends on his stock amounting to $88,450 while Mr. Ryan's son and wife from 1918 to 1925 inclusive received dividends amounting to $730,577.

A report dealing with the physical value of the Puget Sound division of the St. Paul was presented by Charles A. Spencer, roadway engineer of the bureau of valuation of the Interstate Commerce Commission. He said that while the St. Paul contracts for grading in 1906 and 1907 were higher than the prices for the same class of work in 1908 and 1909, there was very little difference between the prices paid by the St. Paul and any other road. The contracts for the Puget Sound extension were let to three general contractors, that portion between Seattle, Wash., and Avery, being given to H. C. Henry, the middle portion to Winston Bros., and the section from Butte, Montana, to Everett to MacIntosh Bros. These contractors, who received about 3 per cent profit, in turn sub-let the work to other contracting companies who, in turn, again sub-let some of the work. Mr. Spencer also testified that there was considerable land and railroad property lying idle on the west end of the line. The Tacoma Eastern yard is not used and is now covered with considerable vegetation. At Seattle, many lots which the railroad purchased are not being used, while at Tacoma a dock and building are lying idle. A track of land purchased at Spokane for tracks and yards to take care of increased business which did not develop also is lying idle. He said: "I do not believe there is a better constructed line from every standpoint than the St. Paul's Puget Sound extension in the West." This line has been brought up in the last year to an exceedingly high standard.

F. M. Kerr, vice president and general manager of the Montana Power Company, said that the Inter-Mountain Power Company, which he formerly headed, furnishes the St. Paul electric power under a contract price lower than the cost of the power to the Inter-Mountain Company. After relating the early history of the Inter-Mountain Power Company, Mr. Kerr said that, "Finally it came about that the principals of the railroad company suggested to us that if they could get electric power cheaply enough, they would electrify their west end.

"This resulted in a definite agreement between the Washing-

ton Water Power Company, the Puget Sound Traction, Light & Power Company and the Inter-Mountain Company, which contracted to furnish 10,000 kilowatts at very low rates. At the same time, an agreement was made with the St. Paul that it would take 10,000 kilowatts."

The St. Paul railroad agreed to pay the Inter-Mountain Company $281,000 a year for these 10,000 kilowatts, Mr. Kerr explained. Subsequently the power company built 112 miles of transmission lines and eventually caused the building by the power company of about $700,000 worth of physical construction. His company found when the time for actual service to the railroad began that it was paying $313,000 for the power for which it received $281,000 from the railroad, said Mr. Kerr.

This situation was remedied when the railroad later increased its requirements to 12,000 kilowatts, for which it pays $338,000 per year, which provides a favorable balance for the Inter-Mountain Company of $25,000 a year, according to the witness.

The Washington Light & Power Company received $150,000 yearly for 11,000 kilowatts used by the Inter-Mountain Power Company. In addition the Inter-Mountain Company furnishes the St. Paul 10,000 kilowatts at the rate of $163,000 per year, making the total cost of power furnished the railroad $313,000. For these 21,000 kilowatts, the Inter-Mountain Power Company received $281,000 from the St. Paul, which was a deficit of $32,000 for the first year of operation. Later, the St. Paul entered into an agreement to increase the consumption to 12,000 kilowatts as compared with the original contract of 10,000 kilowatts at a price for which it paid $338,000. With this arrangement it was not necessary for the Inter-Mountain Power Company to increase its output. Mr. Kerr said that although the railroad paid for 10,000 kilowatts it sometimes received 20,000 kilowatts and as a result a correct basis for charging for power could not be established, and it was later agreed that the railroad should pay for 15,000 kilowatts in 1924, 16,000 in 1925, 17,000 in 1926, and 18,000 in 1927. However, due to the receivership of the railroad, the price paid has not exceeded the rate on the 15,000 kilowatts of 1924.

CHICAGO, ROCK ISLAND & PACIFIC.—*Authority Asked to Abandon Trackage Rights.*—This company has applied to the Interstate Commerce Commission for authority to abandon its right to use the line of the Denver & Rio Grande Western between Denver and South Pueblo, Colo., 119 miles, over which it operated until 1918 under an agreement of 1888 and later dates which provided for joint and perpetual possession and use of the line. The operation of Rock Island trains over the line was discontinued in 1918 by the director general of railroads, but the Rock Island still uses the terminal facilities at Denver and Colorado Springs. The application says that the payments under the old agreements amount to approximately $350,000 a year, whereas a fair rental for the use made of the facilities would not exceed $30,000 or $40,000 a year, and that "these great expenditures constitute an unwarranted drain" on the Rock Island's treasury.

GULF, COLORADO & SANTA FE.—*Bond.*—The Interstate Commerce Commission has authorized this company to issue a general mortgage 6 per cent bond for $21,310,000 to the Atchison, Topeka & Santa Fe for the purpose of refunding a like amount of matured bonds now held in pledge.

GULF, MOBILE & NORTHERN.—*Reduces Preferred Accumulation.*—Directors of the Gulf, Mobile & Northern have declared a dividend of $4.00 on the 6 per cent cumulative preferred stock, payable January 3 to stock of record December 15. Of this amount $1.50 is the dividend for the third quarter, while the remaining $2.50 is to be applied to reduce the accumulated dividends on this stock from $20.00 to $17.50.

INDIANA HARBOR BELT.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $5,000,000 of 50-year 4½ per cent general mortgage bonds, one-half the proceeds to be used to refund a like amount of 6 per cent bonds of the Chicago, Hammond & Western and one-half to reimburse the treasury for additions and betterments. It is expected that the bonds will be sold at not less than 94.

MISSOURI PACIFIC.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $13,156,000 of 5¼ per cent secured serial gold bonds, the proceeds to be applied to the redemption on January 17, 1927, of fifteen-year 7 per cent sinking fund notes, resulting in a reduction of interest charges of approximately $236,000 per annum. The bonds are to be secured by the pledge of $1,000 of stock of the New Orleans, Texas & Mexico for each $1,000 of bonds, and are to be sold to Kuhn, Loeb & Co. at 97.

NEW ORLEANS, TEXAS & MEXICO.—*Acquisition.*—Acquisition by this company of control of the San Antonio Southern by purchase of its capital stock has been authorized by the Interstate Commerce Commission.

NEW YORK CENTRAL.—*Interventions in Lease Proceeding.*—The Interstate Commerce Commission has permitted the Fonda, Johnstown & Gloversville and the New York Central Securities Corporation to intervene in the proceedings on the application for authority to lease the Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis.

NEW YORK CENTRAL.—*Lease Proceedings Consolidated.*—The Interstate Commerce Commission, on motion of this company and the Cleveland, Cincinnati, Chicago & St. Louis, has consolidated for hearing, argument and disposition the proceedings on the application of the New York Central to lease the Michigan Central, the Big Four and the Chicago, Kalamazoo & Saginaw and that of the Big Four to lease the Cincinnati Northern and the Evansville, Indianapolis & Terre Haute.

READING.—*Guaranty of Bonds.*—This company has applied to the Interstate Commerce Commission for authority to guarantee the principal and interest of $3,000,000 of first mortgage 5 per cent bonds of the Philadelphia Grain Elevator Company.

SOUTHERN.—*Stock Issue Authorized.*—Stockholders, meeting at Richmond on November 18, authorized the issue of $30,000,000 additional common stock, of which amount it is proposed to sell $10,000,000 at this time to supplement other resources available for the 1927 improvement budget. This issue has already been authorized by the Interstate Commerce Commission.

TOLEDO, PEORIA & WESTERN.—*New Company.*—The company known as the Toledo, Peoria & Western Railroad Corporation has been formed in Illinois to take over and operate the former Toledo, Peoria & Western Railway Company which was bought at foreclosure by George P. McNear, Jr., of New York on November 1.

Average Price of Stocks and Bonds

	Nov. 23	Last Week	Last Year
Average price of 20 representative railway stocks	101.59	101.98	91.13
Average price of 20 representative railway bonds	96.91	96.78	92.90

Dividends Declared

Chestnut Hill.—$.75, quarterly, payable December 4 to holders of record November 21.

Delaware & Bound Brook.—2 per cent, quarterly, payable November 20 to holders of record November 17.

Illinois Central (leased lines).—2 per cent, payable January 1 to holders of record December 12.

Ontario & Quebec.—Common, 6 per cent; debenture stock, 5 per cent, both payable December 1 to holders of record November 1.

Philadelphia, Germantown & Norristown.—$1.50, quarterly, payable December 4 to holders of record November 21.

Valuation Reports

The Interstate Commerce Commission has issued valuation reports finding the final value for rate-making purposes of the property owned and used for common carrier purposes as of the respective valuation dates as follows:

FINAL REPORTS		
Colorado, Wyoming & Southern	$1,882,785	....
TENTATIVE REPORTS		
Des Moines Union	$2,815,000	1918
Montour	4,956,500	1917

Railway Officers

Executive

T. B. Koons, vice-president in charge of freight traffic of the Central of New Jersey, with headquarters at New York City, has retired. Mr. Koons was born on May 29, 1852, at Treichlers, Pa., and was educated in the public schools and at Eastman's Business College. He entered railway service in the latter part of 1872 as a telegraph operator on the Delaware, Lackawanna & Western. He then became a clerk in the general freight agent's office of the Lehigh Valley, which position he held until 1876. Because of his health Mr. Koons was out of railway service until November 1, 1880, when he assumed the position of soliciting agent and negotiated connecting line prorating arrangements for the Central of New Jersey at Elmira, N. Y. On January 1, 1884, Mr. Koons was appointed general agent at Mauch Chunk, Pa., and in 1887 was advanced to division freight agent and a little later to division freight and passenger agent. In September, 1898, he was promoted to general freight agent at New York, and in 1902, was advanced to freight traffic manager. On January 1, 1913, he was elected vice-president and freight traffic manager, and on January 1, 1924, vice-president in charge of freight traffic, which position he was holding at the time of his retirement.

T. B. Koons

Henry M. Lull, who has been promoted to the newly created position of assistant to the president of the Southern Pacific, with headquarters at Houston, Tex., was born on March 31, 1875, at Windsor, Vt. He was graduated from Dartmouth College, Hanover, N. H., in 1897 and was engaged for a number of years as head of the department of mathematics in the Honolulu High school, entering railway service in May, 1906, as a draftsman in the district engineer's office of the Southern Pacific at San Francisco, Cal. From 1907 until 1915 he served at various points on the lines in California and Oregon as assistant engineer on the Western division, draftsman and computer in the construction department, assistant engineer on the construction of suburban electric lines at Oakland, Cal., and Berkeley and assistant engineer in the district engineer's office at Portland, Ore. In 1915 he was promoted to assistant division engineer on the Portland division, with headquarters at Portland and three years later he was made division engineer on the same division with the same headquarters. In September, 1920, Mr. Lull was promoted to chief engineer of the Texas and Louisiana lines, with headquarters at Houston, a position he held until his appointment as assistant to the president.

Henry M. Lull

Arthur Curtiss James, vice-president of the El Paso & Southwestern from 1922 until its transfer to the Southern Pacific in 1924, and a director of the Chicago, Burlington & Quincy and the Western Pacific, has been elected chairman of the board of directors of the Western Pacific, succeeding **Alvin W. Krech.**

Operating

E. G. Ulrich has been appointed chief supervising agent on the New York Central, lines west of Buffalo.

S. A. Hering, car service agent on the Oregon-Washington Railroad & Navigation Company, with headquarters at Portland, Ore., has been given the title of superintendent of car service.

B. O. Wedge has been appointed trainmaster on the second subdivision and branches of the Union Pacific, with headquarters at Grand Island, Neb., succeeding **J. R. Austin,** assigned to other duties. **A. L. Garman** has been appointed trainmaster on the Central division, with headquarters at Marysville, Kan., succeeding **H. A. Riebow,** transferred.

C. I. Luque, who has been promoted to assistant superintendent of transportation of the Mexican, with headquarters at Mexico City, Mex., was born on February 9, 1888, at Tula, Hidalgo, Mex., and entered railway service in February, 1900, as a telegraph operator on the Mexican Central. In 1902 he was appointed telegraph operator and station agent on the Interoceanic of Mexico (now a part of the National of Mexico) where he remained until 1906 when he became a telegraph operator with the El Oro Mining & Railway Company. Later he served with this company until 1908 as a station agent, dispatcher and assistant to the superintendent. He was then appointed dispatcher on the Mexican, being promoted successively to chief dispatcher, trainmaster and division superintendent. He remained as division superintendent with jurisdiction over the Second division and headquarters at Orizaba, Mex., until October, 1926, when he was promoted to assistant superintendent of transportation.

C. I. Luque

E. E. McCarty, trainmaster on the Atchison, Topeka & Santa Fe, with headquarters at San Bernardino, Cal., has been appointed acting superintendent of the Albuquerque division, with headquarters at Winslow, Ariz., succeeding **J. D. McCully,** on leave of absence. **H. A. Sugars,** trainmaster, with headquarters at Los Angeles, Cal., has been promoted, to succeed Mr. McCarty, and Mr. Sugars has been succeeded by **W. E. Terry,** traveling yard master, with headquarters at Los Angeles, Cal.

Frank M. Worthington, who has retired as superintendent of the Coast division of the Southern Pacific, with headquarters at San Francisco, Cal., after over 44 years' service with that company, was born on March 11, 1862, in Alameda county, Cal. He was educated in Heals Business College, entering railway service on May 23, 1882, as a brakeman on the Vaca Valley & Clear Lake (now a part of the Southern Pacific). From July 12, 1886, to October 1, 1899, he served as a brakeman and conductor on the Los Angeles division of the

Southern Pacific and was then promoted to trainmaster on the San Joaquin division. On June 15, 1907, Mr. Worthington was promoted to assistant superintendent of the Tucson division, with headquarters at Tucson, Ariz., and during the same year he was again promoted to superintendent of the San Joaquin division, with headquarters at Bakersfield, Cal. He remained here until October 1, 1921, when he was transferred to the Coast division, with headquarters at San Francisco, a position he held until his retirement on November 1.

Traffic

F. H. Bryant has been appointed district freight agent of the Seaboard Air Line, with headquarters at Orlando, Fla.

C. L. Chapman, agent for the Central of Georgia at Macon, Ga., has been promoted to freight agent at Savannah, Ga., succeeding **J. L. Weathersby**, deceased.

E. C. Ash, assistant general freight agent of the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., has been promoted to general freight agent, with the same headquarters, and reporting to the president.

A. B. Waldron, general agent on the International-Great Northern, with headquarters at Fort Worth, Tex., has been appointed general agent on the Missouri Pacific, with headquarters at Harlingen, Tex., effective December 1.

A. A. Gardiner, who has been attached to the office of the executive assistant to the vice-president of the Canadian National (Grand Trunk Railway System) has been appointed general passenger agent, with jurisdiction in respect to trans-Atlantic and trans-Pacific passenger traffic of the above companies, with headquarters at Montreal, Que.

Walter V. Shipley, who has been appointed general passenger agent of the Baltimore & Ohio, with headquarters at New York City, was born on November 1, 1883, at Cockeysville, Md., and was educated in the public schools and in business college. He entered railway service on October 25, 1902, with the Baltimore & Ohio and until July 1, 1911, was stenoghapher to the auditor of merchandise receipts. From the latter date until November 1, 1915, he was traveling tariff inspector in the office of the first vice-president of the same road. He then became traveling passenger agent, with headquarters at Baltimore, which position he held until March 1, 1920, when he was promoted to division passenger agent at Washington, D. C. On October 1, 1923, Mr. Shipley was appointed assistant general passenger agent, with the same headquarters, which position he was holding at the time of his recent appointment. Mr. Shipley was in charge of the tour of the late President Harding in Alaska, and was also in charge of the Harding funeral train from San Francisco to Washington and from Washington to Marion, Ohio. He also had charge of the tours of other famous persons in the United States, including Premier Lloyd George, President Coolidge and the Royal Roumanian party.

W. V. Shipley

T. B. Montgomery, assistant freight traffic manager of the Northern Pacific, with headquarters at St. Paul, Minn., has been appointed general eastern agent, with headquarters at New York and with jurisdiction over all agencies between Cleveland, Ohio, and New York. **C. B. Sexton**, general agent in the freight department, with headquarters at New York, has been promoted to succeed Mr. Montgomery.

J. A. Wright, who has been appointed foreign freight agent of the Canadian National, with headquarters at Montreal, Que., entered railway service on May 1, 1899, as a junior clerk in the general freight department of the Grand Trunk, at Montreal, Que. From January 1, 1900, until August 1, 1907, he was stenographer for the same road in the general freight, freight traffic and foreign freight departments, consecutively. On August 1, 1907, he became export clerk and on June 1, 1915, chief clerk, both positions being in the foreign freight department. On April 1, 1917, Mr. Wright became grain agent in the same department, and on April 1, 1920, became assistant foreign freight agent of the Canadian National, with headquarters at Montreal. This position he was holding at the time of his recent appointment as foreign freight agent.

J. F. Hennessey, Jr., who has been promoted to general freight agent on the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., was born at St. Louis, on April 11, 1893, and was educated in the public schools of that city. He entered railway service on June 1, 1910, as a clerk in the general freight office of the Katy at Dallas, Tex., serving successively as mail, correspondence, tariff, cotton and rate clerk. In June, 1913, he was appointed chief clerk to the assistant general freight agent at Houston, Tex., where he remained until the following year when he was promoted to contracting freight agent at the same point. Mr. Hennessey entered the first Officers' Training Camp, San Antonio, Tex., in March, 1917, serving in France as a captain in the Three Hundred and Forty-fourth Machine Gun Battalion of the Ninetieth Division and receiving the divisional citation and a recommendation for the Distinguished Service Cross for operations at Stenay, France. In July, 1919, he reentered the traffic department of the Katy as division freight agent, with headquarters at Austin, Tex., and in August, 1920, he was transferred to Houston, where he remained until February, 1926, when he was promoted to assistant general freight agent, with the same headquarters. Three months later he was transferred to Dallas, holding the position of assistant general freight agent at that point until his promotion to general freight agent at St. Louis on October 15.

J. F. Hennessey, Jr.

Charles A. Bourne, Jr., assistant general freight agent on the Missouri Pacific, with headquarters at Memphis, Tenn., who has resigned to engage in private business, was born on February 5, 1881, at Memphis and entered railway service in 1901, as a file clerk on the Southern. Two years later he was appointed chief clerk in the office of the commercial agent on the Chicago, Rock Island & Pacific at Memphis, where he remained until 1904, when he was appointed traveling freight agent on the New York Central, with headquarters at the same place. From 1909 to 1912, Mr. Bourne served as agent for the Delaware, Lackawanna & Western at Memphis, and he was then transferred to St. Louis, Mo. In March, 1920, he was appointed assistant general freight agent on the Missouri Pacific, with headquarters at Memphis, a position he held until his resignation to engage in private business.

Mechanical

D. S. Littlehales, master mechanic on the Northern Pacific, with headquarters at Jamestown, N. D., has been transferred to Seattle, Wash., succeeding **J. W. Matheson**, who has been transferred to Glendive, Mont. **W. E. Dunkerly**, master

mechanic, with headquarters at Glendive, has been transferred to Jamestown, succeeding Mr. Littlehales.

Engineering, Maintenance of Way and Signaling

S. E. Noble, assistant engineer of the signal department of the Chicago & North Western, with headquarters at Chicago, has been promoted to general signal inspector, with the same headquarters, succeeding **R. B. Arnold,** who has been appointed sales engineer of the E. A. Lundy Company, Chicago.

N. C. Peterson, general roadmaster on the Union Pacific with headquarters at Omaha, Neb., has been promoted to assistant to the general manager as maintenance of way inspector, with the same headquarters, and jurisdiction over the line from Council Bluffs, Ia., to Ogden, Utah. **G. H. Warfel,** general roadmaster, with headquarters at Kansas City, Mo., has been transferred, to succeed Mr. Peterson.

Frank C. Huffman, assistant engineer of maintenance on the Chicago & North Western, with headquarters at Chicago, has been promoted to assistant chief engineer, with the same headquarters, succeeding **Dan C. Rounseville,** retired. **Frank W. Hillman,** division engineer, with headquarters at Chicago, has been promoted to assistant engineer of maintenance, with the same headquarters. Mr. Huffman was born on October 26, 1876, at Milford, Ind., and graduated from Purdue University in the class of 1905, entering railway service in 1903, prior to his graduation, with the Cleveland, Cincinnati, Chicago & St. Louis. In 1905 he entered the service of the Pennsylvania in the engineering department and in the following year he returned to the engineering department of the Big Four, leaving that railroad in 1906 to go with the Chicago & North Western. During 1908 he was assistant state engineer of South Dakota. He returned to the North Western in 1909, serving in various capacities, including that of assistant resident engineer on the construction of the Peoria-Girard branch in 1912 and 1913, until 1918 when he was promoted to principal assistant engineer, with headquarters at Chicago. In 1920 he was promoted to assistant engineer of maintenance, a position he held until his promotion to assistant chief engineer. Mr. Hillman was born in England on February 25, 1880, graduating from the University of Illinois in 1905. Prior to his graduation from college Mr. Hillman served from 1893 to 1899 as an office boy in the office of the assistant engineer on construction and maintenance in the engineering department of the Illinois Central. In 1905 he was appointed assistant engineer of construction on the Illinois Central where he remained until 1906, when he was employed for two years as a draftsman for Ralph Modjeski, consulting civil engineer. In 1907 he was appointed a structural draftsman on the Chicago & North Western, serving successively as assistant engineer, resident engineer and as division engineer, to which position he was promoted in 1918, with headquarters at Madison, Wis. In 1919 he was transferred to Chicago, where he remained until his promotion to assistant engineer of maintenance of way.

F. C. Huffman

R. E. Dougherty, who has been promoted to engineering assistant to the president of the New York Central, with duties covering the entire system and with headquarters at New York City, was born in New York City on February 13, 1880, and was graduated from Columbia University in 1901. He entered railway service with the New York Central on September 30, 1902, as a rodman and was subsequently promoted progressively to transitman, inspector and assistant engineer on construction on the Middle district. In December, 1904, he was appointed assistant engineer on grade crossing elimination, yard design, etc., with headquarters at New York City, serving in that capacity until September, 1905, when he was promoted to resident engineer in charge of construction on the Eastern district. In 1907 he was promoted to assistant district engineer, serving in that capacity until 1910, when he was promoted to district engineer. In 1918, he was promoted to designing engineer, with jurisdiction over the lines east of Buffalo and with headquarters at New York City. On October 1, 1924, he was promoted to special engineer to vice-president of the New York Central, with headquarters at New York, and on October 1 of the following year he was made engineering assistant to vice-president R. D. Starbuck at New York, which position he held until the time of his recent promotion.

Obituary

Dan C. Pettibone, manager of mail traffic and general baggage agent of the Northern Pacific, with headquarters at St. Paul, Minn., was killed in a collision of two trains on that railroad at Lake Park, Minn., on November 20.

Orion B. Hollingsworth, superintendent of the Cumberland Valley division of the Louisville & Nashville, who died on October 26, at Middlesboro, Ky., was born on May 9, 1858, at Belmont, Ohio, and graduated from the Morristown (Ohio) high school. He entered railway service on September 1, 1876, as a yardman on the Baltimore & Ohio at Newark, Ohio, and later served as a ticket agent at Chicago Junction, Ohio, and as a yardmaster at Columbus, Ohio. In 1882 he entered the service of the Louisville & Nashville as a yardmaster at Latonia, Ky., later being appointed trainmaster at Montgomery, Ala. Following this appointment he was transferred to East Louisville, Ky., in 1897, and in 1900 he was promoted to superintendent of the Cumberland Valley division, with headquarters at Middlesboro, Ky., which position he held until the time of his death.

Thomas Neilson Jarvis, formerly vice-president of the Lehigh Valley, died on November 14, at the age of 72. Mr. Neilson was born on May 22, 1854, at Stratford, Ont., and entered railway service on September 1, 1872, and until September 1, 1874, was a clerk in the freight office of the Grand Trunk at Stratford, Ont., at which time he was transferred in the same capacity to Black Rock, N. Y. From September 1, 1875, to June 30, 1878, he was voucher clerk in the general office of the International Line at Buffalo. He then became bookkeeper in the general office of the Canadian Southern (now a part of the Michigan Central) at the same place, which position he held until December 30, 1879. From January 1, 1880, until March 11, 1883, he was accountant for the Commercial Express Line, and from the latter date until February, 1898, he was manager of the Traders' Dispatch Fast Freight Line. Mr. Jarvis then became general eastern freight agent of the Lehigh Valley at New York, which position he held until March 8, 1902, when he became assistant general traffic manager. From March 1, 1903, until January 1, 1904, he was general freight agent, and from the latter date until March 26, 1906, he was freight traffic manager of the same road. He then became vice-president, which position he held until his retirement on May 1, 1918.

THE WESTERN MARYLAND has contracted with the Metropolitan Life Insurance Company, New York, for group life insurance for enginemen, firemen and certain members of its supervisory force, the gross amount of life insurance being about $1,800,000. Accidental death and dismemberment insurance is included, with double death benefits under this head, in case an employee is killed in an accident. Members of the supervisory force do not participate in the health and accident insurance but receive a larger amount of life insurance. An engineman's life insurance and accidental death and dismemberment insurance would be double that of a fireman, but his health and accident benefits are the same.

Railway Age
Motor Transport Section
Devoted to the Co-ordination of Railway and Highway Service

Vol. 81, No. 22 November 27, 1926

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Uniform Accounting for Bus Companies

THE National Association of Railway and Utilities Commissioners and the American Electric Railway Association have approved and are recommending standard classifications of accounts for bus companies. These classifications are outlined in an article in this issue. While these classifications were designed principally for the use of independent bus operators not previously acquainted with the manner of keeping accounts used in the transportation business, they will nevertheless be of interest to all bus operators, including the railways. To a large extent they follow the classification of accounts prescribed by the Interstate Commerce Commission for railways. Most railways operating buses have utilized their accounting departments and adapted their railway classifications of accounts to the requirements of their bus subsidiaries. They are generally free to do this in any manner that they see fit, because the Interstate Commerce Commission has as yet no standard classification of accounts for bus companies, and the states with rigid requirements in this respect are few. Standard classifications of accounts, such as those recommended by the state utilities commissioners, however, are worthy of recommendation for general adoption.

Don't Waste Your Maintenance Money

THE expense of maintenance of buses and trucks is one of the largest items in their cost of operation. One of the factors which determines whether the amount of money so spent is large or small is that of the design of the shops in which the vehicles are kept in running condition. Several salient points in the design of bus garages were emphasized by a special committee on way and structures of the American Electric Railway Association at its recent convention. An abstract of this report appears on another page of this issue. While not covering all the questions arising in the design of bus garages, the reports emphasize a few of the points of importance. With reference to washing facilities the report recommended that these should be decentralized so that it would be possible to wash and clean a bus at any point in the garage where it might be stored. Overhaul and repair pits should be heated, lighted, ventilated and drained so as to insure the comfort and safety of workmen. In all parts of the garage, as well as the pits, heating, lighting, ventilation and drainage should be such as to permit the mechanics to preserve their health and carry on their work efficiently. Inadequate provisions on any of these points will affect the efficiency of workmen adversely. The committee also sounded a note of warning that floor areas should be kept as small as possible, and in the event of large areas, these should be subdivided by walls separating the various operations. One danger of large open areas in garages is the fire hazard. Sprinkler systems are not designed for large areas, says the committee, and have in certain instances actually failed to work at a point of immediate need. Railways newly entering the field of bus and truck operation should consider carefully these recommendations emanating from the experience of those longer in the field. Several of them are using as bus garages old car shops now not required for the service for which they were designed. This is at best a makeshift, which should and probably will be discarded as the railways' fleets of buses and trucks grow.

Chicago Transport Conference, December 1 and 2

THE Chicago meeting of the Railroad Motor Transport Conference to be held at the Congress Hotel on December 1 and 2 will pay particular attention to the motor truck in railroad freight service. This will restore a proper balance in the proceedings of the association, since the last meeting, held at Providence and Boston in August, was devoted largely to passenger transportation by motor bus. However, passenger transportation will by no means be slighted in Chicago and, moreover, the use of rail-motor cars will for the first time come under discussion by this conference. These are subjects here which make the meeting of interest to virtually all railroads. Moreover, at this session the attitude of the conference toward affiliation with the American Railway Association will be decided upon and a permanent organization for the new year will be set up. In our opinion, this meeting will repay large attendance and wide support from the railroads, and indications are that it will receive them.

Give the Public What It Wants

"THE railroads' stock in trade in transportation," says Chairman Gunnison, of the Public Service Commission of New Hampshire. "They must carry the stock that the public demands." To deny the soundness of this assertion would be to deny the cardinal principle of merchandising. It cannot be denied; rather, it should be affirmed and taken to heart by every railroad. At the present time there is an emphatic demand by the public for a comparatively new line of transportation goods—motor bus transportation. No one who has seen the growth of the motor bus as a passenger carrier will question that the demand exists. Whether it is based upon the often mentioned desire to "ride on rubber" is immaterial. Probably it is founded

more substantially upon an appreciation of the ready availability, both as to frequency of service and accessibility of starting and leaving points, of the motor bus. But whatever the reason may be, the demand for bus transportation exists. The railways, like other merchants, must cater to the demands of their customers.

Mr. Thom on Regulation

THE public interest demands that buses and trucks operating as common carriers or contract carriers in both intrastate and interstate service be regulated, Alfred P. Thom, general counsel of the Association of Railway Executives, told the Interstate Commerce Commission in his testimony at its motor transport investigation hearing at Washington, D. C., on October 27. Mr. Thom's testimony, the major portion of which is published in this issue of the Motor Transport Section, is probably the most thorough and sound discussion of the reasons why the highway carriers should be regulated and the manner in which they should be regulated that has ever been presented.

The public, says Mr. Thom, has an interest in the question of motor vehicle regulation from several standpoints. It has an interest in the question of whether or not the method of operation of this new transportation agency tends to deprive it of another method of transportation which is essential and without which public welfare cannot be protected. There is also a public interest as to whether or not any use of the public highway for hire will adversely affect an important public interest of users of that same highway in motor vehicles not for hire. The public is also interested in the effect on the highway itself in its use for hire.

Mr. Thom contends that since motor transportation is inherently a local operation its regulation should be carried on by local, rather than national bodies. This is in accord with the views of the National Association of Railway and Utilities Commissioners and other similar organizations, as well as with many of those expressed at the various hearings in the motor transport investigation.

A contention not previously advanced was that of Mr. Thom that Congress can enact legislation which will leave a large part of the duties of regulating the motor carriers to the states in which they operate. Mr. Thom also declared that the question as to whether Congress can validly utilize the authorities of the states in administering a system of regulation established by an act of Congress is reasonably free from doubt. Such utilization can be made, in Mr. Thom's opinion, either with or without the approval of the respective state legislatures.

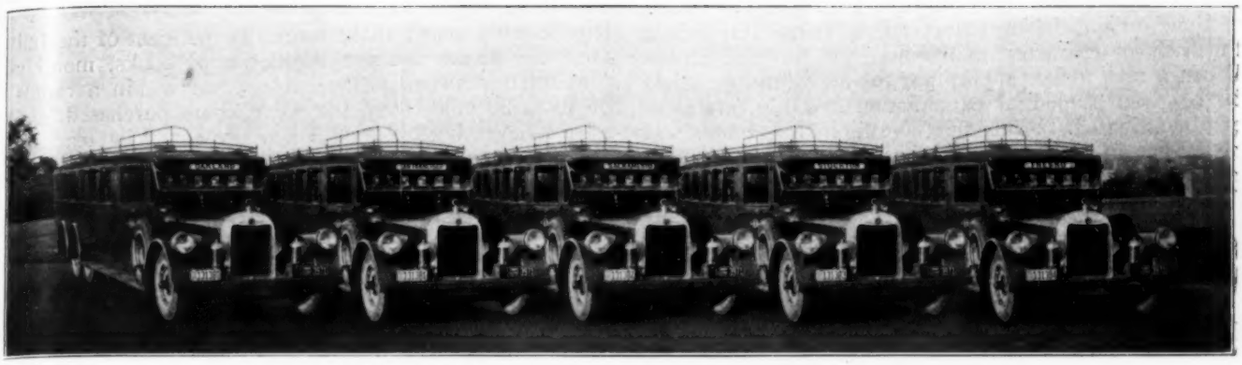
In establishing a system of regulation, Mr. Thom recommended that the public interest in three aspects be protected: the public interest against the overcrowding of the highways; the public interest in seeing that there is not an undue expense put upon the public by an improper use of the highway; and the public interest that where there is already in existence an agency of transportation which is essential, nothing shall be permitted to impair that existing method of transportation to an extent which would have an adverse effect on the public welfare. Such a system of regulation should also provide for the regulation of rates, as well as certificates of convenience and necessity, in the case of common carriers on the highways. Contract carriers, Mr. Thom says, should be required to be registered, such registration to include specification of the field in which they are to operate. Contract carriers should also be required to pay an excise tax or some other appropriate fee in return for its use of and damage to the highway. Requirements as to continuity of service and control over accounts of highway carriers should also be included, as should requirements for financial responsibility.

Mr. Thom's testimony has done more to clarify the situation with respect to regulation of motor carriers than any other utterance. The issues involved have been clouded by the seemingly endless arguments pro and con. Mr. Thom's views will unquestionably have great weight in the deliberations of the Interstate Commerce Commission on the question of its recommendations to Congress, either in favor of or opposed to legislation for the regulation of the highway carriers. The fact that Mr. Thom speaks for the Association of Railway Executives indicates that the railroad attitude on regulation is constructive rather than destructive.

The S. A. E. Meeting at Boston

IT is an encouraging sign when railroad men and automotive men meet together to talk over the larger problems of transportation and the possibilities of co-ordinating railways and motor vehicles to improve their mutual service to the public. Such a meeting was held at Boston on November 16-18 under the auspices of the Society of Automotive Engineers. Although the meeting was primarily automotive in character, attendance of railroad men was encouraged and the whole atmosphere was one of good will between the two forms of transportation. Several of the speakers were railroad men and a number of leaders in railroad motor transport activities were present and participated in the discussion.

One outcome of the meeting was the passage of a resolution calling on the council of the S. A. E. to take the initiative in the formation of a joint railroad-automotive committee to study fundamental problems of the relationships of the two forms of transportation. Altogether the meeting was harmonious and productive from the railroad standpoint, and railroad men who attended, we believe, will agree that they were well repaid. One discordant note was struck, however. It was not serious enough to injure the effectiveness of the meeting as a whole, but such things certainly tend to do harm out of all proportion to their intrinsic importance. Hence it may be well to call attention to it. This was the statement by an enthusiast for a revolutionary plan of handling l.c.l. freight that the railroads never had given transportation service. What he meant was, no doubt, that they had never given a door-to-door service for shippers and consignees located off the rails, which is something entirely different. The fact is that this country grew to a leading position among the world powers primarily because of the kind of railroad service which this speaker believes so inadequate. Perhaps, under present-day conditions, it could be improved, but if one is trying to convince a man of something, it is mighty poor salesmanship to open up by telling him he is an old fogey and always has been. It is possible to indicate how railroad service might be improved without belittling its self-evident accomplishments. Real friends of the railroads can be depended upon to follow the latter method. However, as we indicated above, this was not the general tone of the meeting, but merely a slip for which those who planned the Boston meeting were in no way responsible. It will be worth-while, however, to guard particularly against similar dissonances in future railroad-automotive meetings—and there should be more. The era of mutual distrust between railroads and motor vehicles is drawing to a close and that of co-ordination and co-operation is being ushered in.

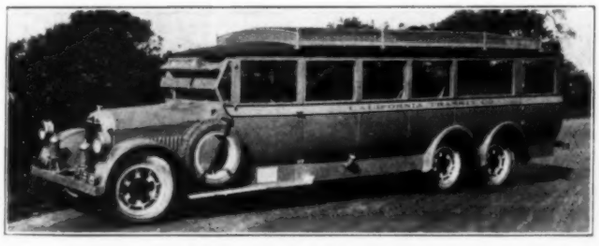


California Transit Company's Stages Running on Through Routes

Large Scale Operations Increase Efficiency

California Transit Company methods reflect advanced bus operating practices

THE operating practices of the California Transit Company, which operates 1,445 miles of motor bus routes between Sacramento, Cal., and San Francisco on the north and Los Angeles on the south, with numerous lateral branches and several alternate routes, represent the methods that long experience has shown to be desirable. The through and local buses make an average of 20,000 car miles daily, while the average number of passengers carried daily is 3,405, or about 1,250,000 annually.



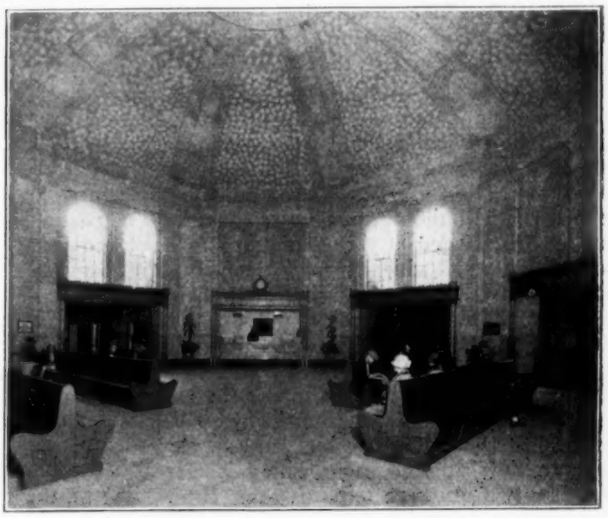
A Stage in Local Service

Between San Francisco and Bakersfield all of the routes are in the San Joaquin valley or contiguous thereto. Between Bakersfield and Saugus, about 45 miles north of Los Angeles, there are alternate routes, one over the Ridge Road, and the other across the Tehachapi mountains and across the western edge of the Mojave desert. Between San Francisco and Fresno one may travel either through Los Baños and Mendota, or through Modesto, Turlock, and Merced. Through service from San Francisco and Sacramento to Los Angeles is scheduled over the latter route.

Through Schedules

The through schedules comprise four buses southbound and five northbound daily. Connection is made at Merced for passengers to and from Sacramento, and all runs are protected by means of additional cars if the number of passengers exceeds the capacity of the regular bus. The distance from San Francisco to Los Angeles over the route followed is 410 miles, and the time of the runs varies from 16 hr. 45 min. to 17 hr. 35 min. southbound, and from 16 hr. 40 min. to 17 hr. 25 min. northbound. These schedules include comfort stops and time for meals enroute.

The system is divided into three operating divisions, each of which is under a superintendent who is given wide latitude in its management. He employs all the men on his territory, and has general charge of all shops and repair facilities, as well as the drivers, stations and agents, and discipline. In other words, he is supreme on his division, except that he is under the general direction of the president of the company.



Interior of Oakland Station

Discipline and Bonus

Ten hours constitute a maximum day's work for drivers, and one change in drivers is made in both di-

rections on the through runs. Drivers are selected on the basis of character, experience, and physical fitness. When a man makes application for a position as driver he is given a medical examination and his references are investigated. While this investigation is under way he is put in training under an experienced driver to receive instructions for three weeks. Then, if he qualifies, he is placed on the extra list and used on the shorter and less difficult runs. As he gains experience, and if he maintains a good record, he is advanced to the longer and more important runs as opportunity offers.

A strict system of discipline is in effect in which the demerit method of marking is used. Drivers accumulating 100 demerits in any six-month period are discharged automatically. They are given an opportunity, however, to diminish the demerits against their records by meritorious service, and by periods of clear records. Courtesy in dealing with passengers is required and the discipline where cases of discourtesy occur is severe. A bonus, based on the merits and demerits, is paid periodically and, for the purpose of determining the amount of the bonus, drivers are divided into three classes: A, those having a clear record for the period; B, those having not to exceed 35 demerits; and C, those having more than 35 demerits. The men are paid the bonus on the basis of their mileage for the period. Those in class A receive 0.3 cents a mile; class B receives 0.2 cents a mile; those in Class C receive no bonus for the period. The average for all classes is about ¼ cent a mile.

Passenger Stations

Passenger stations with such facilities as are found generally in steam railroad stations are maintained at all the larger towns. At these points, and where buses are scheduled to stop for meals, there are restaurants and concessions. At the smaller towns commission agents at convenient points represent the company. A new station was completed recently on San Pedro street, Oakland. At Sacramento the Terminal Auto Stage Company, a union bus depot, supplies the station facilities, and at Los Angeles the Motor Transit Company's depot is used.

The Oakland station was designed to facilitate the handling of passengers and baggage in such a way as to reduce the time necessary for the station stop to a minimum. The buses go to an unloading platform at the rear of the building, but under shelter. The passengers are discharged at the waiting room level and pass through an exit which brings them by the baggage room window, where they can secure their baggage immediately. Passengers going out on the bus are admitted at another gate, so situated that there is no cross movement of incoming and outgoing patrons. The baggage, which is carried on top of the bus, is unloaded directly onto the floor of a balcony, which is built at the level at the top of the bus, and an elevator takes it down to the baggage room where it is ready for delivery in two or three minutes after the arrival of the bus.

This station contains a rest room for those drivers who are not on duty. Both rest and hotel accommodations, but no meals, are supplied drivers when away from home or not on regular runs.

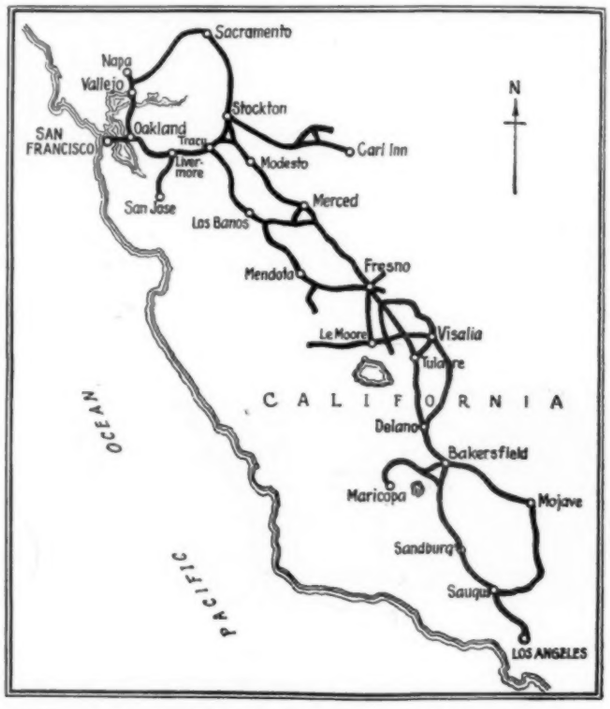
A dispatcher meets every bus and checks all passenger arrivals and departures and the arrival and departure of the bus. Passengers are required to purchase tickets but are carried on passenger waybills in much the same manner as baggage is carried on the railroads.

The basic passenger rate is 3.3 cents a mile. Round trip tickets are sold at the rate of 80 per cent of the full ate. Six-month mileage books, script books, monthly commutation tickets, zone books good within a radius of 10 to 20 miles from the point where purchased, and school ticket books, good when presented by teachers and pupils on school days only and in the school district, are sold at reduced rates running as low as 2¼ cents a mile.

Repair Facilities

The Transit Company cares for all of its own maintenance and running repairs, and for this purpose seven shops have been established at various points on the system. The main shop where heavy repairs are made and cars are rebuilt is at Oakland. Running repairs are made also at the Oakland shop on such cars as run in and out of this station.

To facilitate the work and save time drivers are required to make out a defect report at the end of every



Map of the California Transit Company's Stage Routes

trip. The buses are given a daily inspection by men detailed especially for this purpose, and they must certify that brakes, steering gear, and axles are in good condition and safe for service. The engines are watched carefully for gas consumption and power condition. When necessary the cars are brought into Oakland shop and given a complete overhauling. At every shopping the engine is removed, taken apart and gone over thoroughly. Meanwhile the body, frame, axles, steering gear, transmission, and rear end mechanism are given the necessary attention; the upholstering is repaired or replaced, and the car repainted. A mileage contract on tires is in effect. The mileage between the times of general overhauling of the stages runs from 50,000 to 100,000 miles, depending upon the service to which the car has been assigned.

A complete record of mileage, repairs, and cost is kept for every bus. Repairs are separated into 42 classifications, the cost of every one of which, and of the total, is reduced to a mileage basis. Likewise

revenue and operating costs on every schedule are reduced to a mileage basis so a comparison can be made monthly and annually. The buses carry both mail and express. The express tariff does not permit single packages in excess of 100 lb. In the revenue statistics a separation is made between passenger, mail, and express revenues.

All buses operated by this company are equipped with 90-hp. six cylinder Hall-Scott motors. The radiator is of a special design to give a large capacity and cooling surface. The rear end mechanism on all cars is manufactured in accordance with the company's own design, and the car frames are a special design for the purpose of lowering the body of the car as much as possible. All other equipment used on the buses is made up of standard parts.

In designing its buses the company has varied the capacity from 19 to 32 passengers, and used several types of seats. Experience indicates that a bus with a capacity of 26 passengers is the most economical on the lines it operates. This capacity gives a satisfactory revenue and the cars are more economical in their operation and maintenance than those having a greater capacity.

The earlier buses all had long seats holding four passengers. It has been found that the patrons prefer the individual chairs and at present these are used in all new and rebuilt cars. Nearly every type of upholstering has been tried, including rattan and willow work, but that used now is a hand buffed Spanish leather, and the color scheme of the interior of the car is worked out to harmonize with it and to give a pleasing effect.

Depreciation

A depreciation account is set up for every car as soon as it goes into service. Several systems were considered, but finally a depreciation of four cents a mile was decided upon as being the most equitable basis. The extension of service has been so rapid, however, that the depreciation account has been largely a book account. While a few of the cars acquired from the companies which were absorbed to form the present system of the California Transit Company have been discarded as being unfit for the service demanded of them, most of them have been overhauled and continued in use.

Popularity Due to Convenience

While the bus fares are slightly lower than those by rail, apparently this does not have a decided influence on the patronage, but the governing reasons for the use of this form of transportation seem to be the frequency and convenience of the service. This is true especially of the local runs. The buses have their stations at convenient points in the cities and towns and will stop any place along the line to pick up and discharge passengers. Frequently this saves the prospective passenger much time, besides saving him the inconvenience of being compelled to go to some central point to begin his journey.

"Railroads will be forced to go into the motor truck business to get any of the less-than-carload haulage in distances of 100 miles or less," testified H. E. Everhart of Galveston, Tex., assistant general freight agent of the Gulf, Colorado & Santa Fe, at the recent hearing of the Interstate Commerce Commission held in Dallas, Tex. Mr. Everhart said that from 1920 to 1925 the number of tons of l.c.l. freight hauled on his lines had decreased 35 per cent.

Northland Keeps Buses Moving in Spite of Snow

SNOW plows are frequently used by the Northland Transportation Company to keep the highways used by its motor buses open during the winter. The Northland, with its 2,000 miles of bus lines in Minnesota and adjacent states, probably has as severe winter weather to contend with as any other railway bus company. It has had few instances during recent severe winters when it could not keep the highways open and its buses in operation and on schedule. This has been due in large measure to the fleet of snow-fighting units that it owns and operates.

The Northland has seven units of snow-fighting equipment. The principal one of these is a Walter snow plow, manufactured by the Walter Motor Truck Company, Long Island City, N. Y. This snow plow has a 100-hp., 6 cylinder engine with positive drive on all four wheels and in several instances last winter it was able to maintain a speed of from 25 to 30 miles per hour while clearing the road of snow six inches deep. It is equipped with a nose plow with wings, which throw the snow to some distance on both sides of the road. The Walter snow plow was described in the Motor Transport Section of the *Railway Age* of October 23, page 819.

In addition to this snow plow, three 5-ton White trucks and one 7½-ton Sterling truck are fitted with flanges, and the other two units which are used to clear the roads of snow are two White model 50 buses which are equipped with snow plows.

Snow Fences Helpful

The state Highway Commission protects a number of its principal highways with snow fences, and these have been found helpful by the Northland Company in keeping the roads open. Schedules have been maintained regularly by the buses operating over roads so protected. In Wisconsin, on the other hand, where there are no snow fences, buses are occasionally tied up when the snow on the roads is deep.

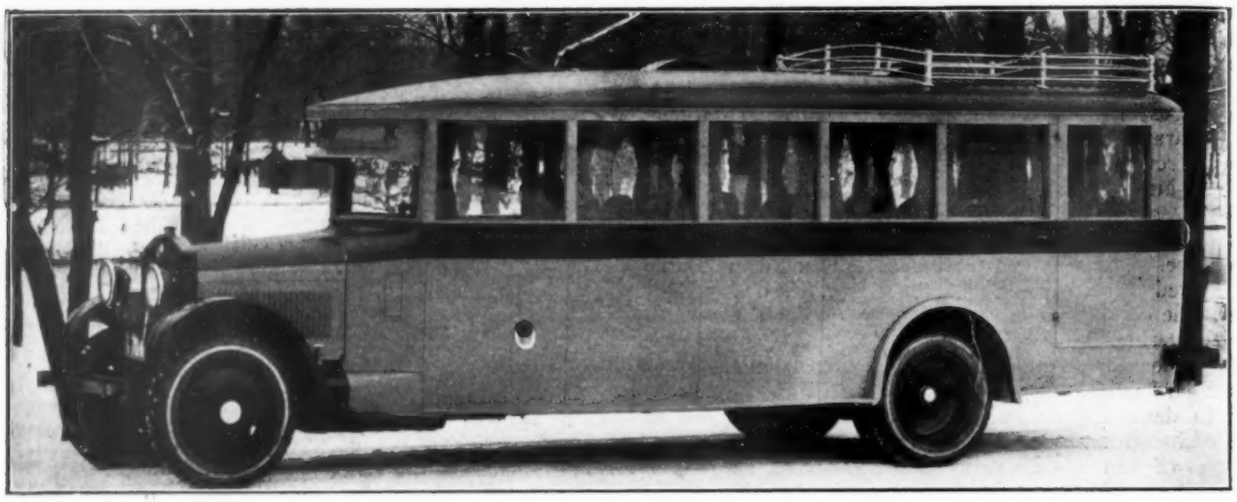
The state of Minnesota co-operates with the bus companies operating over the highways, not only by providing snow fences but also by the operation of a number of snow plow units which it owns. In several instances the Northland Company has agreements with the state whereby it will keep the roads open with its plows if the state will provide snow fences.

The policy of the Northland is to send out its plows immediately after the snowfall ceases, regardless of the time. In the cases of extremely heavy falls of snow, when there is a threat of buses being snowed in, the plows are sent out during the storm. The plows do not follow regular patroling schedule, but are dispatched to points of greatest need.

Care of Buses

The Northland buses are equipped with only the regular heating systems, operated from the exhaust. The company installs its own special heating pipes, however, in accordance with the necessity arising from the extremely low temperatures encountered in Minnesota. The buses are not equipped with thermometers, nor is any particular temperature required inside the buses.

No special attention is paid to the engine radiators of the buses. Special radiator mixtures are not used and buses are not equipped with radiator covers. A heavier oil is used in the engine, however, and the tires are inflated to a greater pressure than ordinarily.



Motor Transport Can Be Regulated

Public Interest Demands Bus and Truck Regulation*

Interstate motor vehicles can be regulated—Scope of governmental control

By Alfred P. Thom
General Counsel, Association of Railway Executives

THERE are some intimations in the record, I am told, that this move for the regulation of interstate commerce by motor vehicles on the highways originated with the steam carriers and is being pushed by them for the purpose of selfishly protecting themselves from the competition of this type of transportation. I desire at the outset to correct any such impression. The pioneer movement to deal with this was inaugurated, according to my information, by the National Automobile Chamber of Commerce by a meeting in Chicago in May, 1925, and resulted in what was known as the Midwest Motor Transport Conference to which were invited representatives of all the various interests affected. At that meeting resolutions were proposed which had been prepared by a committee and were debated, and a substitute resolution was adopted by the conference. I do not desire the railroads to be considered for a moment in the position of, from any selfish standpoint, pressing for or advocating this legislation.

Recently in Boston I had the privilege of addressing the Associated Industries of Massachusetts, and in that address I announced the attitude of the railroads in regard to this question. This announcement I am now authorized to repeat. I was discussing the problems which were confronting the railroads in their relation to the public, and I said:

"We are also confronting problems created by the introduction of new agencies of transportation, such as the motor vehicle on the highway, the airplane and greatly expended and improved systems of waterways. While the future and the consequences of none of these can as yet be forecast with certainty or with accuracy, they all possess possibilities which cannot be ignored. At least one of them—the motor vehicle on the highway—has already made a demonstration which entitles it to rank as a permanent and useful addition to our transportation facilities. It has even now become a substantial competitor in the transportation field for the carrying of persons and commodities. This competition could not be of moment unless it had been found that the new agency meets in some way a public want.

"The public right to the selection of the agency of transportation which it wants and which it finds most useful must be respected, and the railroads will be no party to any effort to strangle and destroy, under the guise of regulation, a new agency of transportation which the public wants and which can serve it usefully. All that they will ask is that the terms of competition shall be fair and that nothing shall be done which will impair or destroy existing agencies essential to the commerce of the people. Whatever is done must be done to improve transportation, not to impair or destroy it. No one can properly ask that any of these problems be solved in a way to give special privilege or special protection to any private interest. The supreme test must always be the interest of the public.

"In the present development of human agencies, it will not and cannot be denied that the existence and competency of transportation service by steam railroads is essential to the welfare of the public. It is the only form of transportation fixed to a given route and which cannot be discontinued. It is the only agency adequate to the carriage of bulk articles in large quantities and for great distances. Nothing has as yet been suggested as an adequate substitute, and its preservation 'in full force and vigor' is essential.

*From testimony before the I. C. C. motor transport investigation hearing at Washington, D. C., on October 27.

"The railroads will be prepared to meet these problems as they arise, in the spirit of frank recognition that the public must have any form of transportation which it wants and which it finds useful; that no effort at strangulation or destruction can be tolerated, but that the terms of competition should be fair and that the proponents of any new proposal must be content to submit it to the test of whether or not it is in the public interest."

Value of Motor Transport Recognized

No advocate of this new method of transportation will find me taking issue in respect to its value or in respect to the necessity to preserve and encourage it instead of impairing it; and that whatever is done must be done with the purpose of improving transportation as a whole and of preserving every useful element in it, including now, of course, the motor vehicle on the highways.

Starting with this premise that whatever is done must be done for the purpose of improving and not impairing

Overcrowding of Highways Should Be Prevented

transportation on which the public is dependent, I think we should approach with frankness and fairness the problem of whether transportation as a whole will be improved or will be impaired by a reasonable and proper regulation of this new, powerful, and important agency.

Of course, the public has an interest in the question from several standpoints. In the first place, it has an interest in the question of whether or not the method of operation of this new agency will tend to deprive it of another method of transportation which is essential to its interest and without which the public welfare cannot be protected. For example, if the effect of the introduction of this new agency into a given territory will be to so impair the earnings of an existing transportation facility there that it cannot continue to satisfy the public needs, the question properly arises: Where does the public interest lie? Does it lie in taking the substitute and doing away with the existing facility or does it lie in preserving the existing facility and not having the substitute? That question is one for some independent body to determine. If the effect of the new system of transportation will be to destroy the old one, then somebody must determine whether it is in the public interest that it shall have that effect. If it will not have the effect of destroying it, but will have the effect of impairing it to the extent that it cannot perform its function of serving the public, then there ought to be some public body vested with power to determine the question of what shall be done in the public interest. So that the public is interested from the standpoint of the effect that any proposal of a new method of transportation will have upon an existing one, and the determination of that question will involve whether the existing one is essential to the public interest and should be preserved in the interest of the public—not in the interest of the existing agency—and what the effect will be upon that existing agency if the new method is provided.

Now that seems to me to present a fair question of public interest. It seems to me that it ought to be determined by some authority that will not undertake to make the determination in the interest of private individuals on either side—of private enterprises on either side—but make the determination strictly from the standpoint of what the public interest requires. That is as between the railroads and existing transportation service, on the one hand, and this new motor vehicle transportation, on the other.

Then there is an additional public interest as to whether or not any given use for hire of the public highway will adversely affect a large and important public interest of users by motor vehicle of that same highway not for hire. There ought to be somebody to determine that question. There are thousands of owners of automobiles who desire the free use of a public highway and who demand that they shall not be excluded from it by unnecessary uses of vehicles attempting to make money out of the use of that highway. The question arises whether or not any given use will unduly exclude other users of the highway; and some public authority ought to be authorized to determine the question of public interest between these two users of a common highway.

Then there is the additional question of what the effect on the highway itself of a proposed use of it for hire will be. Will it have an effect in the destruction of the highway out of proportion to its usefulness to the public? Will it largely and unduly increase the general burden of expense for maintenance in order to provide a way on which carriers for hire can make money? There ought to be some public authority vested with the power to determine that question in which the public is interested.

Need for Regulation Recognized by States

The importance and the need for some kind of regulation is indicated not only by the public interests which I have mentioned, but is indicated by the extent which regulation has been resorted to by the states in response to the necessities to which I have alluded. Thirty-eight states out of 48 have some kind of regulation of carriers engaged in intrastate commerce. The legislative movement in the states—that movement of public thought and of public policy—was not adopted as a haphazard conclusion, but it arose from the conviction of the people that some kind of regulation of this new agency was important and should be provided.

We find, however, by the decisions of the Supreme Court that the states cannot regulate interstate commerce by motor vehicle on the highways, at least to the extent to which I shall presently allude. What argument, entitled to our consideration, can be made that would justify the regulation of intrastate commerce by the states and leave interstate commerce on the same highways unregulated? Is it a wise and sound public policy for 38 states to say that there shall not be the use of this new agency on its highways for state traffic unless public convenience and necessity require it; that there shall not be a crowding away from the highways of the other users of them for state traffic; that the persons entitled primarily to use the highways, namely, those whose taxes built them and who live along the way and who want to get their farm produce to market, should not be crowded away from them by those who use them for state traffic; but that any of these things may be done without limit by vehicles using the highways for interstate traffic?

Now, if the argument be sound that the states should regulate the use of these highways in the public interest so far as intrastate commerce is concerned, I am unable

to see why the argument is not also sound that the use of these same highways for interstate commerce for hire should also be regulated by a proper method and proper exercise of public authority. Can it be in the interest of the public that the largest part of the use of the highways by these motor vehicles, to wit, the intrastate, should be regulated, but that the use of them interstate, across states and through states, should be left without any corresponding regulation?

All this goes to the question of whether there should be regulation, not to the question of what the regulation should be. I do not believe that those carriers that are already regulated by the states will feel that it is just to leave another class of carriers unregulated, which make, vehicle for vehicle, equally heavy demands upon the highway, injuring it by its use to the same extent that other individual regulated carriers use it. I do not consider this question as one arising alone between the rail carriers, including street cars, on the one side, and the users of the public highways by motor vehicles, on the other. There are large questions of public importance that arise between the users of the highways of the different classes and that arise between the users of the highways and those whose money goes through taxation to construct and repair them.

Now, as to the principle. If a system of regulation is to be adopted by which the public should be guided in establishing a regulatory system—in one word I wish to say that the principle on which regulation should be framed is the public interest alone; that the private interest of no private carrier ought in any way to affect the policy which only public interest can justify. Of course, I do not mean by that that regulation or any other governmental policy should not be just to private interests.

Power of Congress

The next question to which I wish to advert is the power of Congress in respect to regulation. There seems to have been a thought present in the minds of many of those who have made statements that the power of Congress relates to and grows out of its power over the instrument that is used in transportation; that the power of Congress is to deal with common carriers engaged in interstate commerce and not with other carriers engaged in interstate commerce. I think it important to bear in mind that the power of Congress is derived from its power to regulate commerce, and from its power to regulate commerce is derived its power to regulate the carrier of commerce, private or public; and that its power to regulate commerce does not grow out of its power over a common carrier. The Supreme Court of the United States has determined time and again that Congress has power to regulate commerce, whether carried by a common carrier, by a private carrier, or by an individual for his own purposes.

The power of Congress is complete in respect to this matter. It does not depend upon the carrier or upon the business in which he is engaged. It depends upon whether or not it is commerce, and if it is commerce, it may lawfully be regulated by Congress. But in determining whether or not and by what means Congress should regulate this traffic by motor vehicle on the highway when engaged in interstate commerce, it is necessary to examine its characteristics and try to apply a system of regulation to it which will be reasonable and will be well adapted to the purposes that the public need requires should be met.

Commerce by steam railroads is predominantly national in character. It cannot be regulated by any authority which is unable to take a comprehensive view of the whole field which they cover and wisely adapt the regulation to the national character of the transportation.

On the other hand, motor vehicle commerce on the highways is predominantly local in character. Some method of regulating it must be found that will respond to this dominant characteristic, if the method of regulation is to be useful. I think it is important, in trying to measure the authority of Congress, how far it must go and the extent to which it need not go, to consider for a moment what those cases, the Buck and Bush cases, decided. My understanding is that in both cases there was an attempted exercise by the state of the power to prohibit interstate commerce on the public highways—to require from the state, as a condition precedent to engaging in the interstate business, permission in the shape of a certificate of convenience and necessity. No question arose as to the regulation of the size of the vehicles, as to their speed, as to their responsibility, but the question arose as to whether or not the states could forbid interstate commerce on the highways, and all that the court decided was that the state could not forbid it. In the very case in which this was decided we find Justice Brandeis using the following language:

"It may be assumed that appropriate state regulations adopted primarily to promote safety upon the highways and conservation in their use are not obnoxious to the commerce clause, where the indirect burden imposed upon interstate commerce is not unreasonable."

I hold it to be true and to be well established by the Supreme Court that in the absence of national legislation covering the subject, a state may rightfully prescribe uniform regulations, necessary for public safety and order, in respect to the operation upon its highways of all motor vehicles, those moving in interstate commerce as well as others, and to this end it may require the registration of such vehicles and the licensing of their drivers, charging therefore reasonable fees graduated according to the horse-power of the engine—a practical measure of size, speed, and difficulty of control. This is but an exercise of the police power uniformly recognized as belonging to the states and essential to the preservation of the health, safety, and comfort of their citizens, and it does not constitute a direct and material burden on interstate commerce. This power, however, does not extend to prohibition of interstate commerce by the state or to a requirement that no such use of the highways shall be made without first obtaining the consent of the state.

The power of the state is not extensive enough to justify a requirement that the use of the highways by a private carrier shall be considered as the use by a common carrier. In other words, a state cannot convert by legislative fiat the business of a private carrier into that of a common carrier.

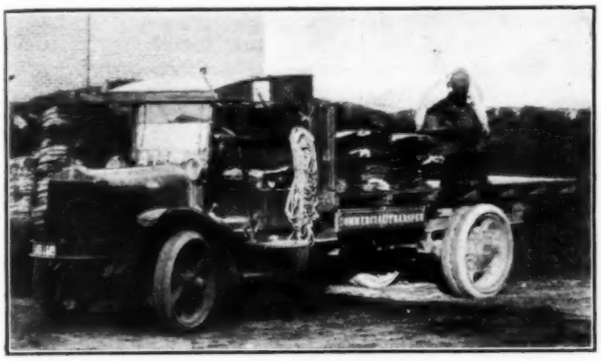
It is possible, therefore, under the commerce clause and under the decisions of the Supreme Court for Congress to go only a part of the way in regulating these carriers, and it is possible for Congress to leave a large part of the field for the states to occupy. There is a part of the field of regulation which Congress cannot leave to the states. As to this part of the field Congress must act or there will, as to it, be no regulation.

Congress Can Utilize State Authorities

I have alluded to the desirability of utilizing local authorities for the purpose of administering any system of regulation that might be adopted. It is important, therefore, to inquire what are the limitations, if any, upon the power of Congress in this regard. Can Con-

gress validly utilize the authorities of a state in administering a system of regulation established by the Act of Congress? That question seems to me to be reasonably free from doubt.

I do not believe it is necessary to consider this from the standpoint of a delegation of legislative power. In



Contract Carriers Should Be Registered

the consideration of this question by the Supreme Court this theory of regulation has been announced: Congress can establish a system of regulation to take effect and to be operative upon the finding by an independent tribunal (by one not related to the federal government) of the facts which under the system of regulation are intended to be the occasion of its operation. For example, Congress passed a law authorizing the American Railway Association to establish the proper height of drawbars on cars and requiring the Interstate Commerce Commission to promulgate that finding upon receipt of the Railway Association's report. Here was an agency that was not an official agency at all—of the United States government or of a state—but Congress prescribed certain general principles of safety which should relate to the height of drawbars and then delegated to the American Railway Association the determination of what that height should be and required the Interstate Commerce Commission to promulgate it. That question went to the Supreme Court of the United States and it was decided that the legislation was within the constitutional power of Congress.

The whole theory to which I have referred was examined by the Supreme Court of the United States in the case of the Union Bridge Company vs. United States in 204 U. S., where all authorities were examined and the law declared in accordance with the understanding of the Supreme Court as to what it is; and I make this quotation from that decision:

"The legislature cannot delegate its power to make a law; but it can make a law to delegate a power to determine some fact or state of things upon which the law makes, or intends to make, its own action depend."

When we analyze the power that was exercised by Congress in the passing of that law, we find it to be the same. It is not a delegation of legislative authority. The legislative authority is exercised by Congress, but the administration of it is confided to administrative officers.

I think it also useful to bear in mind, if Congress were to enact a system of regulation which made the persons who at a given time constitute the regulatory body of a state the power to administer the law in the first instance (subject to a review by the Interstate Commerce Commission), that the consent of the state would not be necessary to the valid exercise by those individuals of the power conferred upon them by Congress. They might readily decline to act until they had the authority of their state, but if they did act and did the things that Congress authorized them to do, that would be a valid exercise of the congressional power and a valid application of the congressional system of regulation.

The conclusion follows that the power to act under the congressional legislation does not come from the office, whether it be state or federal, but comes from the Act of Congress. It also follows that in order to act validly under the Act of Congress, the state commissioners do not need the authority of the state. They might with equal validity be designated as individuals, by name.

I therefore think that Congress may approach this subject from the standpoint of unlimited power over the whole question of regulating interstate commerce carried on by motor vehicles on the highways. Having this unlimited power, it may limit itself and occupy only a part of the field, and may leave another part of the field—that which ordinarily comes within the police powers of the state—to regulation by the states.

Local Authority Should be Utilized

It likewise has the power and, I think, should utilize in the first instance the local authority for the purpose of administering the system of regulation upon which it shall determine; but I believe, also, that as this field is somewhat new, it is important that there should be, both from the standpoint of certainty in the law and from the standpoint of uniform regulation, an appeal, by any party that feels aggrieved, to the Interstate Commerce Commission, and its duty should be to hear and determine the appeals which are presented to it.

Character of Wise Regulation

Now, with that view of the law, the question comes as to what the substantive character of a wise system of regulation should be. It is the belief of those I represent—and I should perhaps qualify that by saying that in a body of men as large as that which I represent, there are nearly always found differences of opinion, and when I express a position here my expression of it must not be construed as a declaration that I represent the unanimous opinion of all in our association; there may be some that take a different view—but I am authorized to appear here and to present these views for the association, but with the understanding that every individual in the association is not bound by my expression here.

I think it important, in the regulation of motor vehicles engaged in interstate commerce on the highways, that the public interest in three aspects at least should be protected. In the first place, the public interest against the overcrowding of the highways—the crowding off of other people equally entitled to their use. In the second place, the public interest in seeing that there is not an undue expense put upon the public by an improper use of the highway by vehicles of excessive weight or faulty construction or otherwise. And, in the third place, the interest of the public that, where there is already in existence an agency of transportation essential to its interests and to its welfare, nothing shall be permitted that will impair that existing method of transportation to an extent that will adversely affect the public interest. If it is necessary for transportation on a branch line to be continued in the interest of the public, and the establishment of facilities by certain applicants to run parallel with its rails would have the effect of making it necessary to abandon the rail line, then the public interest is involved in whether or not that be done. Which is the best, which is the most useful agency in

the particular case? And that situation ought to be regulated. Therefore, it seems to me that one of the features that ought to be covered in any system of regulation is whether or not the public convenience and necessity requires the establishment of the new agency in any particular place. It may be very much more in the public interest for the branch line of railroad to cease operation and be abandoned. It may be that a part of its operations, the passenger operations, might be usefully abandoned in favor of the new system. It may be more in the interest of the public for the rail transportation to continue in its integrity. But that question ought to be decided by somebody who is looking at it from the standpoint of the public interest; and therefore as to all proposed service by motor vehicles on the highways in interstate commerce there should, in my judgment, be a requirement that there should be a showing of public convenience and necessity before it is permitted. That is done when the railroad wants to build into new territory, and very wisely.

It is a familiar exercise of power by Congress to determine in the public interest between two classes of transportation. Always the public interest is involved in that determination, and always there ought to be somebody to determine whether or not any new proposal as to additional transportation service should be permitted in the interest of public convenience and necessity.

Now, the question arises as to whether a system of regulation should include the regulation of rates as well as the certificates of convenience and necessity. As to common carriers on the highways, we think that it should. I will treat separately the carriers which are occasional carriers, occasional cariers by contract. The question also arises, should this regulation attempt to insure the financial responsibility of the carriers and include the requirement of insurance or bonds? We think it should.

The question then arises as to whether or not it should include control over the accounts of such carriers.

Our judgment is that the power should be conferred upon the Interstate Commerce Commission to require or not require control over accounts as they find it necessary or not necessary in the enforcement of the system of regulation.

Another question is, should the regulation include the requirement of continuity in service? We think it should.

Now, as to contract carriers (which in many cases are common carriers)—contract carriers who go anywhere—we think that a thorough study of the question should be made as to how far this larger system of regulation should be applied to them. As to one or two matters we are clear: We think that there should be a registration of all those carriers. We think that the field in which they are to operate should be covered by their application. We think that a carrier using the highways for money making stands on a different basis from a user of the highway not for money making; and that, through an excise tax or some other appropriate method, a fee should be exacted from these users of the highway for money making, as nearly as possible commensurate with the use which they make of the highway and the wear and tear to which they subject it.

We also think that the private carrier for hire has its limitations and should not be permitted to operate, even sporadically, beyond the general sphere of its economic usefulness.

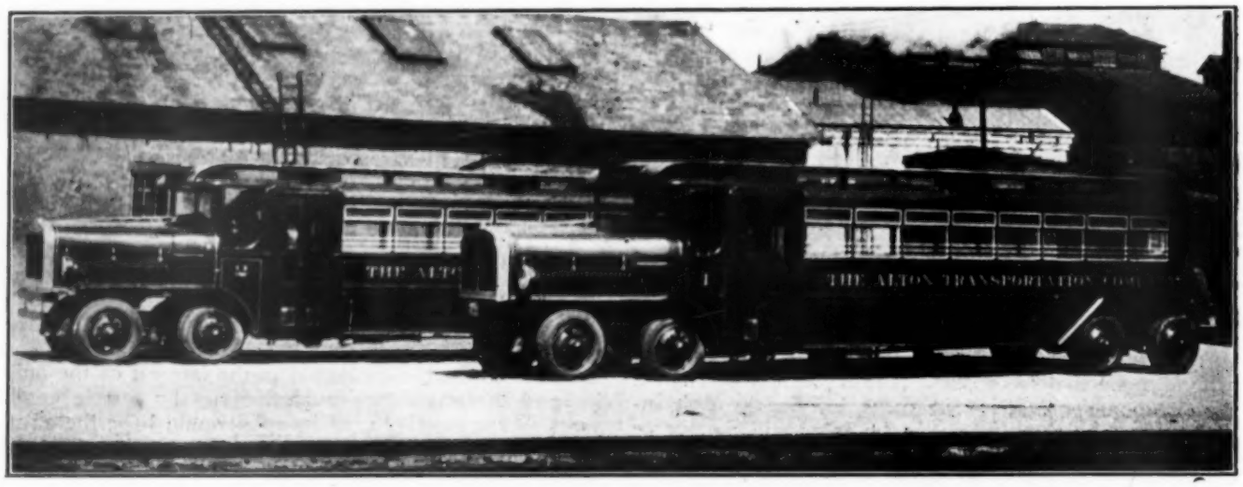
We also think that such a carrier should be required to show financial responsibility for its conduct in the service of the public, and that when it once commences operations it should continue them until the need for them in the public interest disappears and is so declared by the proper authority.

Alton Buses in Operation

THE Alton Transportation Company is now operating buses between Jacksonville, Ill., and St. Louis, Mo. Two round trips daily are made between St. Louis and Jacksonville and additional runs are made from Jacksonville to Alton and from St. Louis to Alton in the afternoon. Twenty-seven stops between Jacksonville and St. Louis are scheduled, and running time being 4 hr. and 50 min. This compares with the running time by train of 3 hr, and 45 min. Stops for passengers are made at hotels as well as at stations.

A rate of 2½ cents per mile has been established for transportation on the buses and it is expected that this rate will be permanent. Since their operation began the patronage of the buses has been heavy. The buses used are the eight-wheel, Versare-Westinghouse gas-electric highway coaches recently purchased by the Alton. A driver and a conductor are assigned to each bus. Both buses tie up for the night at Alton.

The hearing on the Alton's application to operate buses between Joliet, Ill., and Springfield is now pending.



Versare Coaches Used by Alton

Approve Uniform Accounting Classifications

Standard accounts for bus companies doing large or small business recommended

STANDARD classifications of accounts, one for bus companies with annual revenues in excess of $100,000 and the other for companies doing an annual business of less that $100,000, have been prepared by special committees of the National Association of Railway and Utilities Commissioners and the American Electric Railway Accountants' Association and approved by those bodies.

The classification for companies of the larger revenues was approved by the electric railway association in 1925, and that for smaller companies in the convention at Cleveland, Ohio, last October. The utilities commissioners approved both classifications in their recent convention at Asheville, N. C.

The classification for bus companies with revenues in excess of $100,000 annually is outlined below:

Balance Sheet Accounts—Assets

I. Plant and Equipment

Accounts No. 1001 to No. 1003

1101 Installed Prior to a Specified Date.
1002 Installed Since a Specified Date.
1003 Other Plant and Equipment Additions.
(a) Cost of Plant and Equipment Purchased.
(b) Plant and Equipment Under Construction.

II. Investments

Accounts No. 1005 to No. 1007

1005 Investments in Affiliated or Auxiliary Companies.
1006 Other Investment Securities Owned.
1007 Miscellaneous Physical Property.
(a) Property Used in Other Public Services.
(b) Other Investments Owned.

III. Reacquired Securities Accounts

Account No. 1008

1008 Reacquired Capital Stock and Bonds.
(a) Capital Stock.
(b) Bonds.

IV. Reserve Fund Accounts

Accounts No. 1009 to No. 1011

1009 Corporate Reserve Funds.
1010 Liability and Other Insurance Funds.
1011 Retirement Reserve Funds.

V. Special Deposit Accounts

Accounts No. 1012 to No. 1014

1012 Interest Special Deposits.
1013 Dividend Special Deposits.
1014 Other Special Deposits.

VI. Current Assets

Accounts No. 1015 to No. 1021

1015 Cash.
1016 Loans and Notes Receivable.
1017 Miscellaneous Accounts Receivable.
(a) Net Balance Due from Agents, Drivers and Other Transportation Funds.
(b) Other Accounts Receivable.
1018 Interest, Dividends and Rents Receivable.
1019 Materials and Supplies on Hand (Inventory).
1020 Subscriptions to Capital Stock.
1021 Other Current Assets.

VII. Prepaid Accounts

Accounts No. 1023 to No. 1026

1023 Prepaid Insurance.
1024 Prepaid Interest.
1025 Prepaid Taxes and Licenses.
1026 Other Prepaid Accounts.

VIII. Deferred Charges (Unadjusted Debits).

Accounts No. 1027 to No. 1032

1027 Discount on Capital Stock.
1028 Unamortized Debt Discount and Expense.
1029 Property Abandoned Chargeable to Operating Expense.
1030 Preliminary Survey and Investigation Charges.
1031 Other Deferred Charges or Unadjusted Debits.
1032 Treasury Securities.

Balance Sheet Accounts—Liability

I. Corporate Capital Liability

Accounts No. 1051 to No. 1055

1051 Capital Stock Issued and Outstanding.
1052 Capital Stock Subscribed.
1053 Stock Liability for Conversion of Securities.
1054 Premium on Capital Stock.
1055 Assessment on Capital Stock.

II. Non-Corporate Proprietorship

Accounts No. 1056 and No. 1057

1056 Sole Proprietorship.
1057 Partnership.

III. Funded Debt

Accounts No. 1058 to No. 1061

1058 Long-Term Debt.
1059 Real Estate Mortgages.
1060 Advances from Affiliated Companies.
1061 Other Funded Debt.

IV. Current Liability Accounts

Accounts No. 1062 to No. 1073

1062 Receivers' Certificates.
1063 Judgments.
1064 Workmen's Compensation Awards.
1065 Notes Payable.
1066 Liability for Provident Funds.
1067 Audited Accounts and Wages Payable.
1068 Miscellaneous Accounts Payable.
1069 Matured Funded Debt.
1070 Matured Interest on Funded Debt.
1071 Matured Interest on Unfunded Debt.
1072 Dividends Payable.
1073 Other Current Liabilities.

V. Accrued Liabilities Not Yet Due

Accounts No. 1074 to No. 1076

1074 Unmatured Interest.
1075 Taxes Accrued.
1076 Other Accrued Liabilities.

VI. Deferred Credits

Accounts No. 1077 to No. 1078

1077 Unamortized Premium on Funded Debt.
1078 Other Deferred Credits.

VII. Reserve Accounts

Accounts No. 1079 to No. 1083

1079 Insurance Reserve.
1080 Injuries and Damages Reserve.
1081 Retirement Reserve.
1082 Amortization of Capital Reserve.
1083 Other Corporate Reserves.

VIII. Corporate Surplus

Accounts No. 1084 to No. 1086

1084 Additions to Property Through Surplus.
1085 Surplus Reserved for Sinking or Other Funds.
1086 Surplus or Deficit.

Plant and Equipment

I. General Property Accounts
Accounts No. 1101 to No. 1104

1101 Organization.
1102 Franchises.
1103 Patent Rights and Licenses.
1104 Miscellaneous Capital.

II. Physical Property Accounts
Accounts No. 1105 to No. 1114

1105 Land Used in Operations.
1106 General Office Buildings.
1107 Shop and Garage Structures.
1108 Stations, Shelters and Miscellaneous Structures.
1109 Revenue Passenger Cars, Buses, and Stages.
1110 Revenue Freight, Express and Mail Trucks.
1111 Service Cars and Equipment.
1112 Shop and Garage Machinery and Tools.
1113 Furniture and Office Equipment.
1114 Miscellaneous Equipment and Other Tangible Capital.

III. Undistributed Construction Accounts
Accounts No. 1117 to No. 1123

1117 Engineering and Superintendence.
1118 Law Expenses.
1119 Injuries and Damages.
1120 Insurance.
1121 Taxes.
1122 Interest.
1123 Other Expenditures.

Operating Revenue Accounts

I. Transportation Revenues
Accounts No. 1201 to No. 1206

1201 Passenger Revenue.
1202 Baggage Revenue.
1203 Special (chartered or for hire) bus revenue.
1204 U. S. Mail Revenue (on buses).
1205 Express Revenue.
1206 Freight Revenue (on freight trucks).

II. Miscellaneous Operating Revenues
Accounts No. 1210 to No. 1214

1210 Revenue from Station and Bus Privileges.
1211 Parcel Room Receipts.
1212 Storage Revenue from Freight and Baggage.
1213 Rent from Buildings and Other Property.
1214 Other Operating Revenue.

Operating Expense Accounts

I. Maintenance of Plant and Equipment
Accounts No. 1301 to No. 1311

1301 Superintendence of Plant and Equipment.
1302 Maintenance Department Rents.
1303 Maintenance of Buildings, Fixtures and Grounds Owned.
1304 Maintenance of Bus Bodies.
1305 Maintenance of Bus Chassis.
1306 Tires and Tubes.
1307 Maintenance of Freight, Express and Mail Trucks.
1308 Maintenance of Shop and Garage Equipment.
1309 Maintenance and Operation of Service Car Equipment.
1310 Miscellaneous Shop Expenses.
1311 Retirement Expense.

II. Operating Garage Expenses
Accounts No. 1315 to No. 1318

1315 Fuel for Revenue Vehicles.
1316 Lubricants for Revenue Vehicles.
1317 Garage Employees.
1318 Garage Supplies and Expenses.

III. Transportation
Accounts No. 1320 to No. 1328

1320 Superintendence of Transportation.
1321 Bus Drivers and Conductors.
1322 Freight, Express and Mail Truck Drivers and Helpers.
1323 Transportation Rents.
1324 Station Expenses.
1325 Freight and Express Collection and Delivery.
1326 Loss and Damage on Freight and Baggage.
1327 Road Expense.
1328 Other Transportation Expenses.

IV. Traffic Promotion
Accounts No. 1330 to No. 1332

1330 Superintendence and Solicitation.
1331 Advertising.
1332 Traffic Rents.

V. Administrative and General Expenses
A—Administrative Expenses
Accounts No. 1334 to No. 1338

1334 Salaries and Expenses of General Officers.
1335 Salaries and Expenses of General Office Clerks.
1336 General Office Expenses.
1337 General Law Expenses.
1338 Administrative Supplies and Expenses.

B—Other General Expenses
Accounts No. 1341 to No. 1351

1341 Employees' Welfare Expenses.
1342 Valuation Expenses.
1343 Regulatory Commission Expenses.
1344 Amortization of Franchises, Patent Rights and Licenses
1345 Injuries and Damages.
1346 Insurance.
1347 Store Room Labor and Expenses.
1348 Franchise Requirements.
1349 Joint Operating Expenses Transferred—Credit.
1350 Rent of Rolling Stock.
1351 Other General Expenses.

Income and Profit and Loss Accounts

I. Operating Income
Accounts No. 1401 to No. 1405

1401 Operating Revenues.
1402 Revenue from Affiliated or Auxiliary Operations.
1403 Operating Expenses.
1404 Expenses Due to Affiliated or Auxiliary Operations.
1405 Taxes.

II. Non-Operating Income
Accounts No. 1407 to No. 1413

1407 Miscellaneous Rent Income.
1408 Net Income from Miscellaneous Physical Property.
1409 Dividend Income.
1410 Income from Securities and Cash Owned.
1411 Income from Sinking and Other Reserve Funds.
1412 Release of Premiums on Funded Debt.
1413 Other Miscellaneous Income.

III. Income Deductions
Accounts No. 1414 to No. 1419

1414 Rent for Leased Property.
1415 Net Loss on Miscellaneous Physical Property.
1416 Interest on Funded Debt.
1417 Interest on Unfunded Debt.
1418 Amortization of Discount and Expenses on Funded Debt.
1419 Miscellaneous Debits.

IV. Profit and Loss
Accounts No. 1420 to No. 1427

1420 Balance at Beginning of Fiscal Period.
1421 Balance Transferred from Income Account.
1422 Miscellaneous Credits.
1423 Appropriations of Surplus to Reserves.
1424 Dividend Appropriations.
1425 Appropriations for Investment in Physical Property.
1426 Miscellaneous Appropriations of Surplus.
1427 Other Deductions from Surplus.

Smaller Companies

The classification of accounts for companies with annual revenues of less than $100,000 is outlined below:

Operating Revenue Accounts

I. Transportation and Other Revenue

1201 Passenger Revenue.
1203 Special Bus Revenue.
1204 Other Transportation Revenue.
1210 Miscellaneous Operating Revenue.

Operating Expense Accounts

I. Maintenance of Plant and Equipment

1301 Superintendence of Plant and Equipment.
1302 Maintenance of Buildings and Shop Equipment.
1304 Maintenance of Vehicles.
1306 Tires and Tubes.
1311 Retirement Expense.

II. Operating Garage Expenses

1315 Fuel (gasoline).
1316 Lubricants (oil and grease).
1317 Wages of Garage Employees.
1318 Garage Supplies and Expenses.

III. Transportation

1320 Superintendence of Transportation.
1321 Bus Operators.
1323 Station Expenses.
1325 Other Transportation Expenses.

IV. Traffic Promotion

1330 Traffic Expenses (advertising).

V. Administrative and General Expenses

1334 General Officers, Salaries and Expenses.
1335 Other General Office Salaries and Expenses.
1345 Liability and Other Insurance (injuries and damages).
1351 Other general expenses.

Plant and Equipment Accounts

1101 Organization.
1105 Land and Buildings.
1109 Motor Vehicles.
1112 Machinery and Tools.
1113 Furniture and Office Equipment.
1114 Other Capital Expenditures.

Balance Sheet Accounts—Assets

I. Plant and Equipment

1001

II. Investments

1005

III. Special Deposits

1012

IV. Current Assets

1015 Cash.
1016 Loans and Notes Receivable.
1017 Accounts Receivable.
1019 Material and Supplies (inventory).
1020 Other Current Assets.

V. Prepaid Accounts

1023

VI. Deferred Charges

1027

Balance Sheet Accounts—Liabilities

I. Capital (capital stock, sole prop. or partnership)

1051

II. Funded Debt

1058 Mortgages Payable and Lien Notes (long term debt).

III. Current Liabilities

1065 Notes Payable.
1067 Accounts and Wages Payable.
1073 Other Current Liabilities.

IV. Accrued Liabilities

1074 Interest Accrued.
1075 Taxes Accrued.
1076 Other Accrued Liabilities.

V. Deferred Credits

1077

VI. Reserves

1081 Retirement Reserve.
1082 Other Reserves.

VII. Surplus or Deficit

1086

Income, Profit and Loss Accounts

I. Operating Income

1401 Operating Revenues.
1403 Operating Expenses.
1405 Taxes.

II. Non-Operating Income

1407 Miscellaneous Non-Operating Income.

III. Income Deductions

1416 Interest on Debt.
1419 Miscellaneous Income Deductions.

IV. Surplus or Deficit

1420 Profit or Loss.

Northern Ohio Has School for Employees

THE Northern Ohio Power & Light Company has instituted a school of instruction for bus operators and mechanics in which systematic training is given the employees in the performance of their duties as they should be performed. The school is held at the Kenmore shops at 9 a. m. and 7 p. m. on Monday and Thursday of each week. Twenty-one lessons, with three reviews, constitute the full course of instruction in each of these groups—driving, maintenance and safety. Illustrated lectures of 30 minutes each are included in the course of instruction.

The subjects covered in the various departments and the order in which they are given are as follows:

Company organization: Operating rules; schedules; fare collections; reports; co-operation; review.

Bus operation: Cleanliness of bus; personal appearance; heat and ventilation; personal conduct; accident and ejectment reports; care of injured and sick; care of persons asphyxiated—prone pressure method; review.

Public relations: Courtesy; selling of service; information to the public; publicity of company's business; review.

General: Bulletins and special instructions; traffic rules and laws; handling of electric wires; selling company's securities; open discussion of all lessons.

In the mechanical department the subjects are arranged as follows: Engine; oiling; cooling system; carbon; ignition; gas and vacuum; review; clutch; transmission; differential; propeller shaft; brake system, foot, shaft and rear axle; brake system level; brake system vacuum; review; front axle and steering gears; tires, wheels and fenders; body; lighting, buzzers and horn; battery and starter; starting quick; stopping quick; open discussion, all lessons.

In the accident prevention department the order of subjects covered is: What to do when accidents occur; when to make out accident reports; how to make out accident reports; why reports are required of all unusual occurrences on or near your bus; how to secure witnesses, their value, why they should be obtained; accidents, their effect on the company and the public; review of first seven lessons; rough operation; speed, boulevard stops and right-of-way; safe operation at railroad crossings; schedules and how to make them safely; buses colliding with other vehicles; bus collisions, bus and car collisions; making proper stops; review of past seven lessons; visiting while on duty; keep your mind on your work; scuffling, playing jokes and results; individual accident records, how compiled; the value of the accident record; be faithful to your company; general review of the past 22 lessons; open discussion, all lessons.

Truck Body on A. C. F. Bus Chassis for Pennsylvania Freight Service Between Washington, Pa., and Waynesburg

How Railways Can Use Motor Vehicles

S. A. E., at Boston meeting, takes action toward formation of joint committee to study problem

THE Society of Automotive Engineers at its "automotive transportation and service meeting" on November 16-18 at Boston heard addresses and discussions on many subjects of interest to railroad motor vehicle operators as well as to railroads which have so far confined their activities along these lines to observation and study. A considerable number of railroad men who have specialized in problems of motor transport were in attendance. As a culmination of the first day's sessions, when the relationships between motor vehicles and railroads were discussed, a resolution was passed calling on the council of the society to take the initiative in forming a joint railroad-automotive committee to study the fundamentals of motor vehicle operations as they affect the railroads. This committee, as recommended by the meeting in Boston, would be composed of three appointees of the Society of Automotive Engineers, three of the National Automobile Chamber of Commerce and five of the Railroad Motor Transport Conference.

The resolution as adopted follows:

There is a definite necessity for agreement on fundamentals of automotive freight transportation in its relation to other transportation facilities. It is believed that the Society of Automotive Engineers should sponsor a study of these fundamentals.

These fundamentals should be established and defined by a joint committee representing the Society of Automotive Engineers, the National Automobile Chamber of Commerce and the Railroad Motor Transport Conference. The committee should consist of three representatives of the Society of Automotive Engineers, three of the National Automobile Chamber of Commrce and five of the Railroad Motor Transport Conference. The committee representatives of the automotive organizations should include not less than three members actively engaged in the solution of motor transport problems.

It is requested that this resolution be transmitted to the Council of the Society of Automotive Engineers, and that it be acted upon favorably at an early date.

Need to Study Truck Operation

The first session was designated as the "Freight Handling Session," and F. C. Horner of the General Motors Corporation acted as chairman. The first speaker was F. I. Hardy of the Boston & Maine. Mr. Hardy told in brief of the truck operations carried on under contract for his railroad and then discussed some of the uneconomical features of truck operation which he had observed in the case of some independent truck men. He stated that a number of such operations which had come under his observation showed that the operators had no adequate knowledge of costs and that they were doing business at rates much lower than advisable.

He stated that the trucks, however, had "made other transportation agencies sit up and study transportation as never before." Since the war, he said, the railroads have really been *selling* transportation service and they are finding it profitable to do so. Some railroads, he added, may still feel that the motor truck is an outlaw, but most of them feel that the truck has done all it can as an enemy to the railroads and now it is time to see what it can do as a friend, in co-ordination with the railroads. Mr. Hardy said that there was a need for co-operative study about some of the fundamentals of

the trucking business and it was this idea as presented by him which finally resulted in the passage of the resolution referred to above.

The Use of Containers

The next speaker was William P. Kellett, a consulting engineer, who presented a plan for extensive use of containers in railroad freight service. These containers, according to his plan, would be provided with casters and could be easily manipulated around the freight house. One man, he said, could move a container containing five tons of freight. Another feature of his idea was that a platform tractor could pull a whole train of these containers on to a string of flat cars, if the freight house was provided with stub-end tracks. On the other hand, if the house tracks ran the length of the platform the containers could be easily manipulated by hand on and off the flat cars.

The adoption of his scheme, he believed, would solve the problem of the handling of l.c.l. freight. On the other hand, he predicted that it might seriously interfere with the business of the express company. Therefore, he suggested that the express company ought to be called upon to install this service for the railroads, handling all shipments under 150 lb. in weight. Shipments for distances up to 30 miles should be handled entirely by truck and for greater distances by containers which would be handled both by truck and by rail.

Discussion brought the admission from this speaker that his plan would require a uniform level of all freight house platforms in relation to car floors; moreover to enable the containers to be manipulated easily, all freight house platforms would have to be of concrete construction. It was pointed out that such changes would necessitate heavy capital expenditures.

The third and last speaker at the freight handling session was Donald W. Perin, of the Perin-Walsh Company, container manufacturers. This speaker outlined the advantages of containers and illustrated the points he made from citations of actual cases. The advantages, he claimed for the container included the saving in handling of shipments, the saving in costs of crating and packing, reduction in idle investment and fewer claims for loss and damage. Mr. Perin expressed the belief that the container should be so designed that it could be handled by existing methods and equipment insofar as possible. He showed illustrations on the screen portraying several different designs and sizes, some for handling in baggage cars, some for box cars and some for flat cars. There are three different methods of moving the containers, he said, viz., the lift-off, the ramp track and the roll-off method. The lift principle, he said, is adopted for large wholesale movements where the volume of business justifies the installation of cranes. The ramp track principle is limited to special cases and the roll-off principle can be used anywhere, being limited chiefly by the size of the doorways through which the containers must pass.

He stressed the point, however, that the question of design of containers is entirely secondary to that of working out details of operating plans which will make the benefits of container use universally available at an early date.

The Freight Terminal

The afternoon session on November 16 was given the name "coach-truck-railroad session," and the chairman was F. J. Scarr, supervisor of motor service of the Pennsylvania. The first speaker was Bruce V. Crandall, formerly of the Railway Review. Mr. Crandall had as his subject "The Railroad Freight Terminal." Mr. Crandall said that freight terminals were originally located in an era of water and horse vehicle connections, whereas now that the chief connection is the highway vehicle. "It is my thought," he said, "that we must make a study of the trends of traffic, the character and location of production and consumption and scientifically zone the United States, handling each section so that we can get the greatest possible efficiency of distribution, co-ordinating the waterways, highways, railways and airways." Mr. Crandall added that the retention of existing terminals as now placed with the idea of making some improvements did not appeal to him. "My plan," he said, "to place new freight terminals in new locations would be impracticable under the old conditions where we depended upon horse-drawn vehicles with their limited radius of action. It can be done in this day because of the advent of the motor truck." In general, his plan would be to have the railroad terminals at outlying points and have the freight trucked from them.

The Motor Bus and the Railroad

The second speaker at the afternoon session was A. P. Russell, vice-president of the New York, New Haven & Hartford, and president of the New England Transportation Company. He spoke informally concerning the New Haven venture into the highway passenger transportation field in 1925 after enabling legislation had been passed. Single trip passengers on the railroad, he said, had declined from 34,000,000 in 1914 to 24,000,000 in 1923 and the company felt that something must be done to conserve its passenger traffic. With the buses, he said, rail and highway passenger traffic combined had brought the New Haven's total passenger business back to the basis of 1923. (Other descriptive matter concerning the New England Transportation Company of a similar nature to that presented at the Boston session of the S. A. E. appeared in the Motor Transport Section of the *Railway Age* of June 26, page 1981).

He said that the average cost of buses was now running around 29 cents per mile, including 10 cents maintenance cost. He said the company was getting 5.7 miles per gallon of gasoline and 56 miles on a quart of oil and was paying 1.5 cents per coach-mile for tires.

The last speaker of the first day's session was G. Lloyd Wilson of the Wharton School of Finance and Commerce, University of Pennsylvania, who spoke on "Co-ordination of Transportation Services." The uses of the motor truck in co-ordination with other transportation agencies he summarized as follows:

First. As substitutes for railroad freight cars in intra-terminal industry-to-industry switching movements which are usually unduly slow and expensive when performed all-railroad.

Second. As substitutes for freight cars in sub-station delivery and concentration service between major freight stations and freight-receiving and delivery sub-stations located in industrial and commercial areas.

Third. As substitutes for railroad-trap or ferry-car service between freight stations and industries in the terminal districts.

Fourth. In place of railroad freight cars in the interchange of less-than-carload freight between carriers including inter-railroad, electric railway and steamship interchange services.

Fifth. To replace rail movements of L. C. L. and C. L. traffic between steamship piers and industries located at a distance from the water front sections of large terminals.

Sixth. As substitutes for lighters, barges and carfloats at ports where such services are performed as necessary harbor services between railroad freight stations, steamship piers and industries in the districts.

Seventh. In place of local or way freight trains for handling local short haul L. C. L. freight between larger metropolitan centers and surrounding towns.

Eighth. As auxiliary services between central zone stations and other smaller stations in the zones to replace freight trains in distributing and concentrating long haul L. C. L. freight.

Ninth. As units of a co-ordinated rail-motor, electric railway or steamship-motor system performing collection and delivery services in connection with traffic moving via steam railroad, electric railway, and steamship routes.

Important Points in Bus Garage Design

SALIENT points in the design of bus garages were emphasized by the special committee on way and structures of the American Electric Railway Association in its report at the Cleveland convention on October 4. An abstract of the report follows:

The salient points which should be emphasized are:

1. Washing facilities.
2. Overhaul and repair pit facilities.
3. Lighting, heating and ventilating systems.
4. Fire insurance and protection requirements.

It is desirable that there be a decentralization of washing facilities. It should be possible to wash and clean a bus at whatever point in the garage it may be stored. Practically all recently constructed garages embody this feature, retaining at the same time the central washing plant.

Pits

Pits are used almost universally except where their use is prohibited by city or state laws. In such places, racks or hoists serve in their place. Overhaul and repair pits should be heated, lighted, ventilated and drained so as to assure comfort and safety to workmen. It is desirable that pits be communicating when arranged in batteries. This is possible through connecting tunnels or by open ends pits.

Light

Any design should afford a maximum amount of light. Artificial illumination is costly. Side windows should extend to the floor as far as possible to light the under side of buses. Lights in pits should be equipped with vapor-proof globes.

Ventilation and Heating

Next to light in importance of design is ventilation. Gas and carbon monoxide vapors affect the efficiency of workers. However, their removal because of fire hazard is equally important. While large side windows with ventilators assist in their removal, there should be forced draft and roof exhaust sufficiently large to care for ventilation, aside from any windows, inasmuch as in inclement weather such means are rendered useless. It is also essential to provide pit ventilation.

There are many types of heating and ventilating systems. The type most in use for heating is the low pressure vacuum system with direct radiation. Unit type heaters are also being more and more widely used. Hot air systems in which heat is distributed through underground and overhead ducts by a blower fan are also in use. There may be some objection to these systems due to the fact that air which is recirculated, may be gas charged and thus dangerous from the standpoint of health as well as fire risk.

Floor Areas Should Be Small

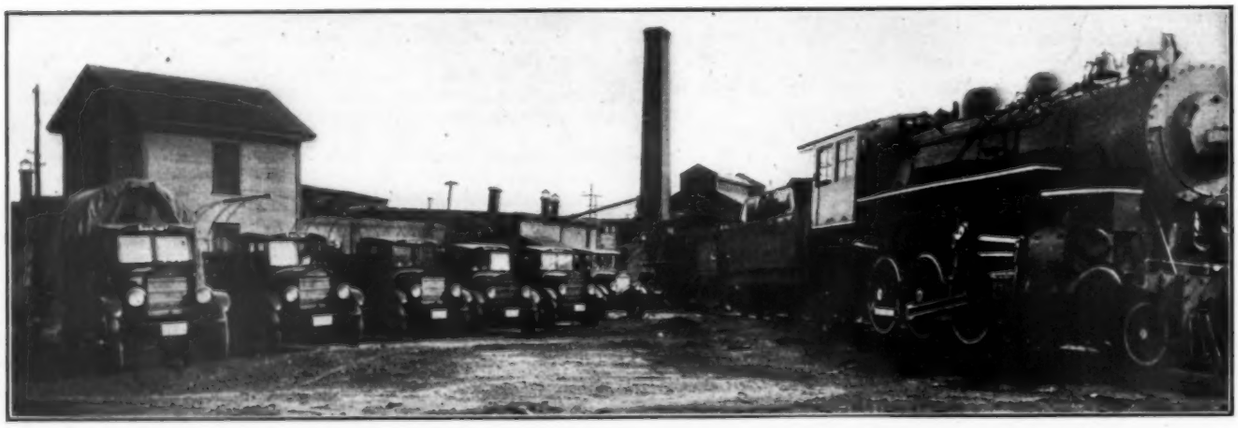
The tendency in design has been to increase floor areas until there are now in existence garages of almost gigantic proportions. While it is true that lack of floor space is costly, it is equally true that insurance rates covering large areas are bound to rise to uneconomical limits due to increased fire hazards. This committee therefore feels that it should at least sound a note of warning to the industry to the end that floor areas shall be kept as small as possible and still permit efficient operation. In any event large areas should be subdivided with walls separating various operations, such as forge, inspection, battery, tire vulcanizing, etc. Gas pockets should be well drained and, as far as possible, the fire hazard reduced to a minimum.

Fire Hazards

Buses, because of the fine interior finish, draperies and upholstering, gasoline, oils, and greases, create serious fire risks. It is very probable that the National Fire Protective Association will formulate rules and regulations governing points in the design of bus storage, bus terminals or bus operating houses and in this event there will be surcharges on insurance rates for buildings designed contrary to such requirements.

Sprinkler systems are not designed for large areas and have in certain instances actually failed to work at a point of immediate need. Ten sprinkler heads delivering 20 or more gallons per minute should handle an ordinary fire. When more than 10 heads have been called into play, it has been a serious fire, in practically every instance with a high loss. Records of the National Fire Protective Association substantiate this fact. Sprinkler systems will not materially lessen insurance rates for very large areas.

Storage of gasoline as required by code—30 ft. from any structure and underground—offers no serious fire hazard and from an insurance standpoint is not of such grave importance. In many instances city and state ordinances control the quantity which may be stored, also the manner of control, whether remote or otherwise.



Reo Speed Wagons in Service of the Samoset Company, the Maine Central's Highway Subsidiary

Co-ordinated Rail-Highway Service*

Great growth in motor vehicles—Railroads can use them to effect savings and improve service

By W. J. Cunningham

James J. Hill Professor of Transportation, Harvard University

AT the present time there are registered in the United States about 20 million motor vehicles, including about 70,000 buses and about 2½ million trucks, These represent an investment of approximately 18 billion dollars devoted to highway transportation. That investment has more than doubled since 1920.

The total investment in railroad equipment is about 6 billions. On that basis of comparison the investment in motor vehicles is now about three times as great as the investment in railroad motive power and rolling stock.

The railroad investment in right of way, track and structures, stations, terminals, shops and other facilities is about 17 billions. It is interesting to compare that amount with the total of public funds invested in improved highways constructed, in the main, to meet the needs of the motor vehicle. There are something more than 3 million miles of highways of all kinds. Of these there are now nearly 500,000 miles of hard-surfaced highways which, according to the estimate of the United States Bureau of Public Roads, cost about 8 billions of dollars. It is evident, then, that at this stage of the highway development, the public investment in hard-surfaced roads alone is approximately one-half of the private investment in railroad physical structures outside of equipment.

If we combine the investments in motor vehicles and hard-surfaced highways, the total is 26 billions, or about 3 billions in excess of the total investment in railroads. At the present rate of growth in the production and use of motor vehicles, and the extension of improved roads, the excess of investment over railroads will grow rapidly larger year by year, when note is taken of the fact that the highway construction recently has been on a scale in excess of one billion dollars annually, a sum greater than the railroads are expending annually in additions and betterments. Today's cost of a modern concrete highway is approximately equal to the average per mile cost of existing railroads, including equipment and terminals.

Motors Carry More People Than Railroads

We are here comparing a well defined class of public service by railroads with a loosely defined combination of automobiles, buses and trucks, some engaged in public service and some used in private business or for pleasure. It is impossible to make the separation between commercial motor vehicle mileage as a means of profit or as an adjunct to private business, and mileage made for purely social use and pleasure. These difficulties are embarrassing when we attempt to measure the relative transportation production of the highway and the railroad. Moreover while we have exact knowledge of the transportation output of railroads we are without such data for motor vehicles and are thus forced to use estimates which require many assumptions.

A recent number of the *Railway Age* has an illuminating article on that subject by H. R. Trumbower, an economist in the United States Bureau of Public Roads. (See article entitled "Highways, Largest Passenger Carriers; Railways Freight," *Railway Age,* Motor Transport Section, September 25, page 608.)

Railroads Not to Be Scrapped

There is too great a tendency, however, to predict that in the not distant future the railroads are doomed to take but a minor place in transportation as highways are further extended and improved and as the motor vehicle increases in number and effectiveness. Such a prediction runs counter to economic facts. In the long run that form of transportation will survive which for the service rendered has the lowest economic cost. The great bulk of freight transportation in this country is in mass movement long distances. In that field the railroad is economically supreme. Likewise in passenger transportation, the railroads will continue to take care of the long journey passenger, the overnight traffic between large cities, and the mass movement of suburban passengers morning and evening.

The Field for Motor Trucks

Taking up first the question of freight service, it appears that here the railroads have less to worry about, and the public generally has less direct interest than in passenger service. Nearly three-quarters of railroad operating revenue is derived from the freight service. Relatively little of it is of a class or within a zone which admits of serious encroachment by truck. Yet while relatively the competitive tonnage is small, the amount is large when stated in absolute totals. When we remember that the number of motor trucks now in use is slightly greater than the total number of railroad freight cars, the potentiality is evident, even when account is taken of the fact that something like one-half of the trucks operate almost entirely within metropolitan areas and a substantial part of the other one-half is used in rural service non-competitive with railroads. That part of the truck-borne tonnage which was railroad-carried before the advent of trucks is confined mainly to short-haul less than carload traffic between cities in the highly developed industrial zones. Here the superiority of the truck for the movement of high grade manufactured products and certain kinds of raw materials in limited quantities is unquestioned. In most cases where trucks are used the inclusive ton-mile cost is lower than the combined cost of rail movement and trucking between the rails and the plant or warehouse, but even where the ton-mile cost of all-railway movement is slightly higher than by rail, the savings in the typical case in time, in packing, in loss and damage, and in the better control of movement, favor the motor trucks.

The railroads are not in ignorance of these facts and while it goes against the grain of the railroad traffic manager to lose tonnage which was once his, the loss is accepted with an approach to equanimity, if not by the traffic department, at least by the operating department.

*An abstract of an address delivered before the Society of Automotive Engineers, Boston, November 17.

That short-haul traffic, particularly in less than carload lots, adds substantially to gross but contributes little to net revenue. Indeed, in many cases, it is not remunerative when charged with a fair proportion of indirect expenses and charges. Where facilities are taxed to the limit by freight of all classes, the short-haul, low net-producing traffic interferes with and slows up the movement of the better-paying long-haul tonnage, and in many cases the net result would be more favorable if the overburdened facilities were relieved in the interest of freer movement of the more desirable traffic and more rapid turnover of equipment. So far as terminal expense is concerned, the cost of handling the short-haul ton is the same as that of handling the long-haul ton. Under the existing rate scale it may be demonstrated that in many cases the element of terminal cost, as distinguished from the element of line-haul cost, is not adequately recognized in the charge to the shipper, hence as a general rule, even though there are frequent exceptions, the longer the line haul the greater the profit.

Railroads Supreme in Long Haul Traffic

If the typical railroad were fully equipped to handle expeditiously and economically all of the tonnage in sight, the force of what has just been said would be diminished, as under the economic law of increasing returns every additional ton is worth taking if it pays even a very small excess over the direct expenses of terminal and line handling, exclusive of indirect and constant expenses and charges which must be met by the traffic as a whole. The important limitation of that economic law is that it applies only when there is unused capacity. It does not operate when the facilities are utilized to the economical limit. Beyond that point the law of decreasing returns operates until facilities are expanded.

But if the railroad traffic manager, in spite of these economic facts, is worried by the diversion of local freight to the highway, he may be comforted by the fact that the automotive industry adds to his total tonnage much more in good-paying business than the trucks take in poor-paying tonnage. It is estimated that in 1925 the railroads carried over 3 million cars loaded with motor vehicles or materials used in the industry. This takes no account of material used for highway construction. It is probable that both classes of traffic made up one-eighth of total railroad traffic in 1925.

There is, of course, the difficult question of determining the critical point in length of haul, the distance within which the truck is economically preferable and beyond which the railroad is the better agency. I do not think that it is practicable to set a definite limit at this time. The distance will vary with local conditions, including the character of the highways, the capacity of existing railroads, the volume of traffic and the nature of the commodities. In some cases it may be 30 miles; in others it may be 50 miles. The answer may be found only by intensive study of the specific locality. Recent surveys of highway traffic have some significance in their indication that about 80 per cent of the trucks are operating within a zone of less than 30 miles.

A sound policy of transportation co-ordination would seem to dictate that the railroads instead of looking upon the motor truck as a harmful competitor, and obstructing its wider use, should recognize it as a desirable means of relief from the responsibility of providing freight house and other terminal facilities for that traffic which is most burdensome from the viewpoint of operation and car utilization and least desirable from the viewpoint of net revenue. I believe that this opinion is now held by the majority of railroad executives who prefer to have their facilities more fully used for tonnage which moves in solid trains over each engine district.

A further element in a program of co-ordination is that of utilizing the motor truck directly by the railroads or under contract for the railroads, as substitutes for the expensive and facility consuming way freight train. Several roads are now so using motor trucks on the highways and the results are promising in two fields, (1) in and near large terminals in metropolitan areas and (2) as a substitute for local freight trains on thin-traffic branch lines.

Another phase of co-ordination is the creation of new traffic by motor trucks. It is probably that for every ton of local freight taken from the railroads by motor trucks, more than one ton of new traffic has been brought to the railroad by trucks which have developed new producing territories so remote from the railroad stations that the heretofore existing forms of transportation were prohibitive in cost. This is a field wherein the industrial departments of railroads may increase railroad revenue by co-ordination with trucks.

Store-Door Delivery and Containers

Two other phases of co-ordination may be referred to very briefly. Their importance justifies much more time for discussion than is now available. I refer to the service of door-to-door delivery, commonly termed store-door delivery, and the use of unit containers. Largely because of differences in opinion concerning a few factors of relatively minor importance, the railroads and the shipping interests have not yet made the progress that should have been made in adopting door-to-door delivery and thereby effecting desirable economies in time, freight house capacity, freight car utilization, and demand upon crowded city streets. Its adoption in some form is bound to come ultimately. The principle, I believe, is economically sound and in broad public interest. In a somewhat limited field the unit container has distinct economic advantages and its use is likely to be broadened.

Railroad Passenger Traffic Shrinking

So much for the freight service. When we turn to the passenger service we find that the motor vehicle has made serious inroads on railroad passenger revenue. While the railroad freight traffic as a whole has been increasing, in spite of the development of motor trucks, the railroad passenger traffic has been declining in total.

In the five years from 1920, after demobilization of the army had practically been completed, to 1925, the number of railroad passenger shows a loss of nearly 30 per cent, and the number of passenger miles shows a decrease of 23 per cent. An increase of 6 per cent in the average journey accounts for the fact that the decrease in the aggregate passenger miles was less than the decrease in the number of passengers, and indicates the nature of the loss. It is in short-distance local passengers. It is not in long-distance riders. Their number and their aggregate mileage has increased, particularly in Pullman car riders, notwithstanding the much complained of Pullman surcharge. It is not in the commutation or suburban passengers. They also have increased slightly in number. The loss to the railroads is confined to the local passenger trains between adjacent cities and in rural districts where the private automobile and the motor bus are affording more convenient and more frequent service.

As between the private automobile and the bus, the former has taken by far the greater number from the railroads. The bus as a factor in the situation was not important three or four years ago when the recession in railroad passenger traffic had already set in unmistakably. The bus, of course, has accentuated the loss, and inasmuch as the buses are steadily increasing in number,

their effect in the immediate future may be seen in further inroads on railroad local passenger traffic.

While the number of long distance automobile riders and tin can tourists is absolutely large, and while we cannot but be impressed by the number of states represented by the registration plates on cars which we meet in the tourist season on any of the trunk highways, but a small part of that traffic is really competitive with railroads. In the main, it is traffic which the automobile itself created and would not have gone to railroads if the motor vehicle had not been developed. To be sure many a summer vacation trip heretofore made by rail is now made on the highway and a large part of the thirsty tourists who now choke the trunk roads to Montreal might pay railroad fare if there were no other way to make a personal inspection of the workings of the Quebec system, nevertheless, as has already been stated, the through passenger trains are not losing in patronage and the railroads need not be greatly concerned over that form of competition.

The kind of competition to which they are harmfully subjected is that which can be illustrated by my own experience. I am fortunate enough to own a summer home in the White Mountain district of New Hampshire. We are 125 miles from Boston. During our first summers in that beautiful region we patronized the Boston & Maine Railroad but during the past four or five years, although the trips per season averaged from eight to twelve, I can recall using the train but twice and on each of those two occasions my journey took me beyond Boston by rail.

The highways are hard-surfaced to within 10 miles of my destination. Allowing for the time taken by the street car and subway ride to the North Station and the stage from the railroad to my summer home, I can, without reckless driving, make better time than via rail, I can go at any hour in comfort equal to that of a parlor car, and my total inclusive cost per mile, using a car in the $2,000 class, including interest, depreciation, insurance and taxes, is little more than the railroad fare for two passengers.

Unlike the smaller loss in local freight traffic, this diversion of local passenger traffic from railroad revenues is serious because the long distance travelers are not increasing sufficiently in number to make up the deficiency. To meet its obligations as a common carrier the railroad must run at least the minimum of passenger service and its schedules are subject to review by the state regulating authorities. The citizen who is not a car owner or who prefers to use the rails rather than the highway must be provided for. As a result the typical railroad, particularly in New England, on its many lines of thin traffic, is running passenger trains which do not pay all of their direct expenses, to say nothing of a fair proportion of indirect expenses, taxes and interest charges. If the railroad is to remain solvent, the loss must be borne by long distance passengers and shippers by freight. No part of the loss can be transferred to the commutation passenger although, in the typical case, he is now carried at rates which are not remunerative.

It is easy to understand why the railroads desire to abandon those lines in which the greatest loss is sustained from operation. Except in but relatively few instances, however, such abandonment is contrary to public convenience and necessity and will not be permitted by the state and federal authorities. Even if passenger service were abandoned there would still remain the obligation of the railroad as a common carrier to perform the freight service. The existing bus lines do not as a rule serve every railroad-served community and in freight service there is even less organization of common carrier trucks to care for freight. In New England, as well as in other northern climates, many of the rural highways are impassable for motor vehicles during a part of the winter. Hence the reluctance of the regulating authorities to be swayed by a doleful exhibit of railroad red figures.

At this stage of the development there appear to be but two alternatives. The railroads may either continue their unprofitable local passenger trains, cutting down the number of trains to the lowest limit permitted by the commissions, economizing in every practicable way, and attempting to make up the loss elsewhere, or they can go into the bus business themselves, attempting to regain a part of their lost passengers. If their bus service is comprehensive and reasonably serves every community on the local line, and if arrangements can be made with the state and municipal authorities to keep the highways clear of snow (assuming of course that the roads are hard-surfaced) the Commission is likely in such cases to authorize the withdrawal of all passenger trains.

Train Costs $1.25, Bus 25 Cents, a Mile

There would then remain only the question of freight. The railroad way and structures would still require maintenance, the burden of indirect expenses and interest charges would not be lightened, but the direct loss from passenger trains would be avoided and the red figure would be smaller. The direct cost of a local passenger train is about $1.25 per mile. The total cost of a bus is about 25 cents per mile. Even if the bus did not pay, there would be a substantial reduction in loss. Looking further ahead there appears to be no reason why, with hard-surfaced roads and the use of highway snow plows, trucks cannot be made to serve instead of the local freight trains, and the non-paying railroad lines completely abandoned.

Railroad-Operated Buses

That views similar to these are now held by many railroad executives is evidenced by the recent activities of railroads in inaugurating bus service either to supplement or supplant rail passenger service. You are all familiar with what has happened in New England. Here both the New Haven and the Boston & Maine Systems, through subsidiary bus companies are operating bus lines which parallel nearly one-half of their railroad lines. Complete financial results are not publicly available and I cannot say whether or not the lines actually show a profit. While it is yet too early to form any definite conclusions as to the actual degree of profit or loss, I believe that the action is along sound lines. The co-ordination of highway and rail service in public interest may best be accomplished by a greater degree of railroad participation in motor bus operation. In my opinion there is likely to be a substantial growth in that field. With the spectacular growth of the new form of transportation it is quite natural to find that the railroads, in their full growth of maturity, should be several laps behind motor vehicles in adapting themselves to new conditions, and the process of catching up with the procession is still going on. The earlier railroad attitude of obstructing the use of motor vehicles may now be regarded as shortsighted. They lost a great opportunity to be the pioneers in that field, anticipating the now well established public preference, under favoring conditions, for motor transport, instead of being forced into it late in the day primarily by motives of self protection. The processes of co-ordination, therefore, have been operating only during the past three or four years. The possibilities are difficult to measure and forecast; the economically desirable limits are difficult to define.

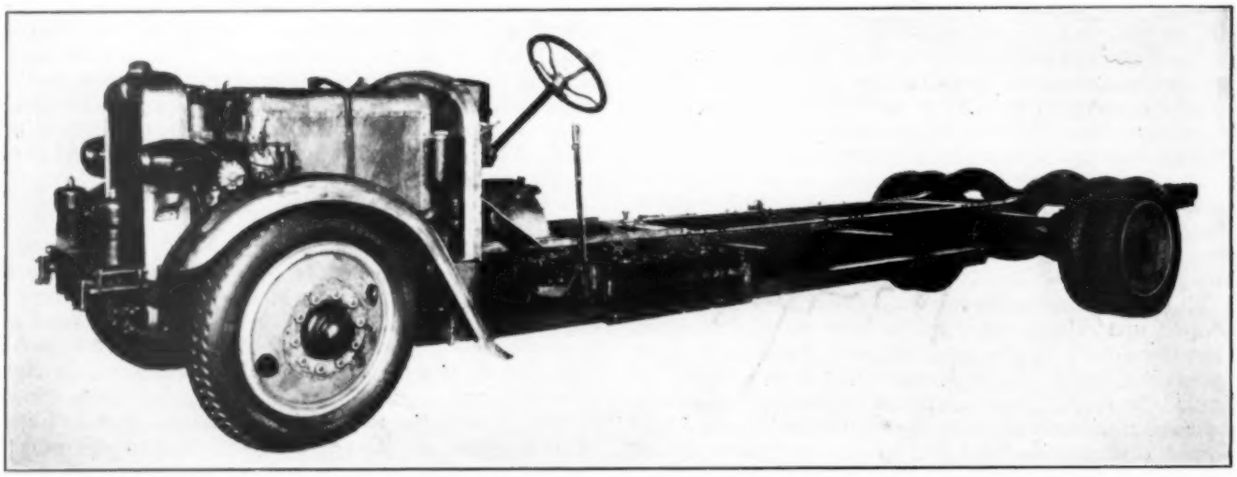
New Equipment

Bus Operated by a Steam Power Plant

THE Steam Appliance Corporation of America, Inc., 1051 Union Trust Building, Cleveland, Ohio, has applied Rotobaker steam generators as the power plant for automotive buses. Five of these buses are now in service.

The steam generator is of the water tube type, consisting of 16 sections, which are interchangable and quickly replacable. Seamless steel tubing of A.S.M.E. boiler tube specifications is used. The steam generating tubes are L shaped and are welded to a vertical header at their lower end and at the top of the L to an arched cross connecting tube. Water is circulated from the water drums, which are mounted above the sections, one on either side, through the section and return to the water drum. The separation of steam from the water takes place in the top half of the water drum. The steam generator is arranged to be quickly detachable and is mounted in panels attached to cast aluminum corner posts. The top of the generator is covered with a cast aluminum cover, well insulated.

Water is supplied to the generator automatically, without attention from the driver, by means of an electrically operated trap. A steel bottle is filled with water from the water tank by means of a small gear pump driven by a reversible electric motor running at 1,750 r.p.m. In the water bottle is located a special high pressure float which actuates a switch closing the circuit to a solenoid valve which opens and admits steam to the water bottle until the pressure within the bottle equals the pressure within the steam generator. The water pump is then reversed by means of a mercury tube switch operated by the solenoid valve and water under steam generator pressure is pumped out of the bottle into the steam generator. As the water is pumped out of the bottle the float, upon reaching the bottom of the bottle, again actuated the solenoid valve switch relieving the bottle of



A 236-in. Wheelbase Chassis Equipped Complete with the Automatic Rotobaker Steam Power Plant

is then dried in the storage drums which are located between, and slightly above, the water drum. Any water collected in the drying drums drains back to the water drums. Steam is taken from the generator through an equalizing tube located in the top of the steam storage drum, which is located between the drying drums and slightly above them.

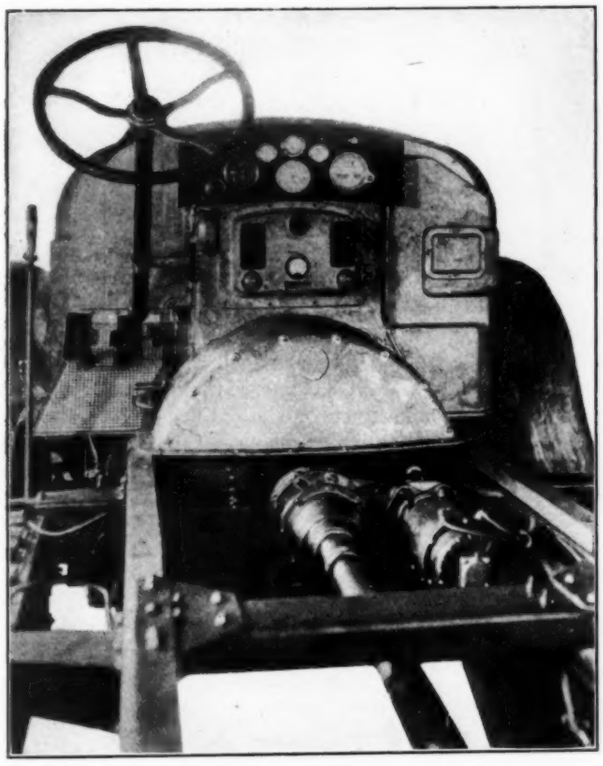
The section header tubes consist of the two vertical members and one horizontal member connected to the lower end of the vertical headers. This arrangement forms a water wall completely around the combustion chamber. This chamber is lined with a special refractory material cemented together to form a monolithic lining. The top over-hang of the combustion chamber is made of a special metal having a very high heat conductivity. These top members are brazed to the lower steam generating tubes of the sections, and materially increase the heating surface and protect the tubes most exposed to the heat from combustion. The insulation around the

pressure and opening the bottle to atmospheric pressure, the pump motor reversing as before and filling the bottle with water from the tank. The complete cycle requires approximately 20 sec. when operating at full capacity. The operation of the trap is controlled by a master switch actuated by a float similar to the trap float.

To start the plant in operation the bus driver snaps on the control switch on the instrument board which operation starts the trap system and brings the water in the steam generator up to the proper level, where it automatically breaks the trap circuit. The ignition switch can be snapped on during the period the trap is filling the steam generator and, upon the water level reaching the proper point, the fire is automatically started. The whole operation consumes about five or six minutes, when filling the generator from an empty start. In normal operation the generator is filled with water and steam can be generated ready to start in four or five minutes from a cold start, as in firing up in the morning.

An open fire type burner is used employing a small vano fan driven by a two speed electric motor to supply air for combustion. Fuel is pumped by twin auto pulse pumps from a 40-gal. tank mounted on the right side of the chassis, to a float feed chamber; from this chamber the fuel is metered through a jet to the mistifying pump, which is operated by the blower motor. The mistifying pump breaks the fuel into a fine fog by mechanical means and delivers this fog under a slight pressure to the burner nozzle. The nozzle is located in the center of the air stream from the vano fan. Air from the vano fan and fog from the mistifying pump, are mixed in the right proportion for good combustion in the burner entrance tube. Ignition is by means of a spark plug located near the nozzle in the burner tube. A standard automotive type breaker and coil is used.

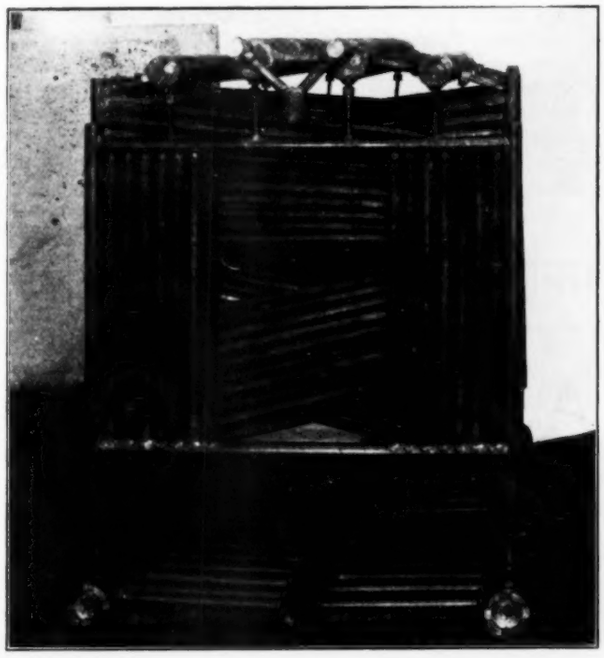
As the fan which supplies air for combustion, the pump which mixes the fuel charge, and the breaker for ignition are all driven by the one electric motor, the control of the fire and therefore the steam pressure resolves itself into a simple make and break switch in the motor circuit. This switch is located on the back of the steam gage and is actuated by the Bourdon tube of the steam gage. When the pressure reaches a pre-determined high point, the circuit is broken stopping the electric motor and shutting off the fire. Upon the steam pressure dropping to a pre-determined low point the switch closes the circuit to the lower motor and the fire is started. The fire comes on and goes off according to the steam pressure without any attention from the operator, and will continue to operate as long as the ignition switch on the instrument board is in the "on" position. Two speeds are provided for the blower motor, the low speed giving a steaming speed of 25 to 30 m.p.h. and the high speed giving a steaming speed of 40 to 45 m.p.h.



The Controls and Instrument Board of the Rotobaker Steam Power Plant

The speed is controlled by means of the throttle which is operated by a standard automotive type foot accelerator pedal. The throttle is of the balanced piston-poppet valve type, being slightly over-balanced so as to be positively self-closing. The pressure on the foot pedal corresponds closely with that on a "gas" bus, and the travel has been worked out to agree with standard practice. The feel of the foot throttle is the same as the feel of a gas accelerator. The throttle valve operates on saturated steam as the super heater is located between the throttle and the engine.

The engine is located just ahead of the steam generator and is of the five cylinder rotor reciprocating type, semi-uniflow. The bore stroke is 4½ in. by 3½ in. giving a displacement of 248 cu. in. Steam is distributed by means of a single balanced valve having three ports and an automatic back pressure relief.



Rotobaker Steam Generator Model No. 550 with the Cover Removed

The steam cut off is controlled by means of a small cylinder valve located inside the main valve, and can be set by the operator to cut off at 12½ per cent of the stroke at one point, 37 per cent at two points and 65 per cent at three points. Three point cut off is used only for starting or slow speed hard pulling.

Reverse is accomplished by turning the valve by means of a lever and link connection to a foot pedal. This pedal takes the place of the gas car clutch pedal.

The engine is permanently connected to the rear axle through a four joint Spicer propeller shaft. The engine is a self contained unit entirely enclosed with all moving parts running in oil. The valve and cylinders are lubricated by a special high pressure lubricator driven off the speedometer drive gear on the rear of the main shaft.

The electric generator is driven by means of a silent chain from the rear of the engine, just forward of the speedometer drive gear. The chain is easily adjustable.

The steam pressure is 600 lb. at the throttle and the temperature 575 to 625 deg. F. The steam generator is designed with a factor of safety of ten and the engine of six.

The engine exhausts into a semi-annular chamber on the front top side of the engine case directly into the oil

separator. The oil separator is of the centrifugal type employing parts of a well known automotive type air cleaner.

Water and oil are separated from the exhaust steam which, after it leaves the separator, is used to drive a small turbo pump and fan unit located back of the radiator. The turbine exhausts into a simple jet condenser into which water from the bottom of the radiator is pumped in quantities varying with the engine speed. The change from steam back to water takes place in the jet condenser and returns as water to the storage tank, located just forward of the fuel tank on the right side of the chassis. Water is pumped from the tank through a large strainer by means of the turbo pump to the top of the radiator, flows through the radiator, which has approximately 12 sq. ft. of frontal surface, out through a tube on the lower tank and into the jet condenser as described above. In this way the coldest water is pumped into the condenser. The total water capacity is approximately 100 gal. which is sufficient for 2,000 to 3,000 bus miles.

Toilet Facilities Feature of New Ruggles Bus

A NEW 26-passenger touring motor bus especially adapted to long interurban runs and special tours has been put on the market by the Ruggles Motor Truck Company, Saginaw, Mich. A distinctive feature

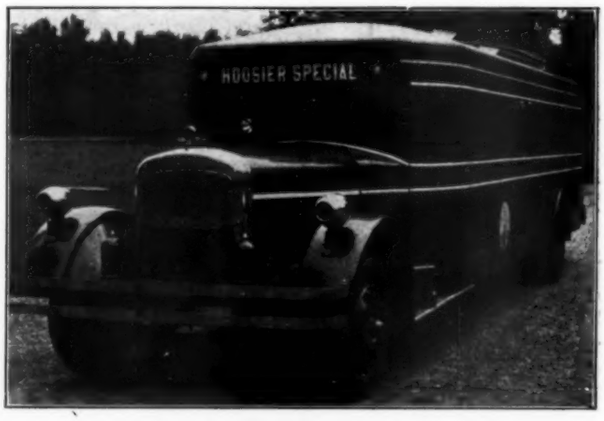
Toilet Facilities of New Ruggles Bus

of the bus is the complete lavatory and toilet facilities which have been installed. They are situated at the right rear side of the bus and finished in mahogany paneling. The lavatory includes a toilet, an ice-water tank, a large heavy plate-glass mirror, a porcelain wash-bowl with running water, soap and towels.

The body is mounted on a 236-in. wheel base chassis, powered with a 105-h.p., 6-cylinder motor with double reduction drive. The front wheels are single and the rear dual Budd steel disc wheels with 34-in. by 7-in. pneumatic cord tires as standard equipment.

The chassis is also equipped with Gruss air springs at the front.

There is sufficient head room in the interior of the bus to allow a person of average size to walk through without stooping. The seats accommodate two passengers and are equipped with arms, the cushions being covered with striped mohair. The window shades are of the roller type and mirrors are installed between the windows, together with combination ticket holders. The floor is covered with linoleum. Over this covering is a Wilton carpet on the aisle. Lighting is by dome lights

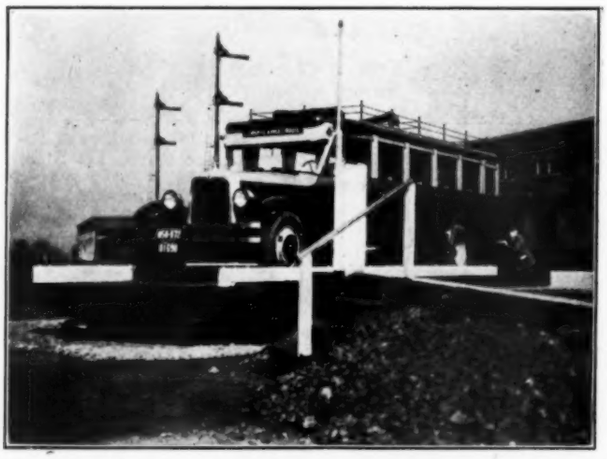


The Ruggles 26-Passenger Parlor Bus

with non-glare shields. Side seats are built over the rear wheel housing which have ample space between them for a portable lunch or card table.

Running the entire length of each side of the interior of the bus and above the seats are individual luggage racks, which are nickel-plated.

Space is provided on the roof for taking care of large size baggage.



Turntable for B. & O. Motor Coaches at Jersey City Terminal

Motor Transport News

The Boston & Maine is contemplating an extension of its freight service by motor truck at an early date.

The Sand Springs Railway has established a passenger bus service between Tulsa, Okla., and Sand Springs, approximately 10 miles.

The Boston & Main Transportation Company has adopted the slogan "Railway or Highway, Ride the Boston & Maine Way" for use in its bus advertisements.

The Boston & Maine Transportation Company has arranged to take over the bus line of the Gray Line Company, Boston, with which it has been competing on the Boston-Portland, Me., route.

The Reading has modified a part of its plans for the operation of a system of bus lines, changing the proposed route from Doyleston, Pa., to Norristown to extend only from Doyleston to Lonsdale, a distance of 10 miles.

A number of independent bus lines operating in the state of Kentucky have been consolidated into the Consolidated Coach Corporation, of which J. E. Kittrell, Lexington, Ky., is president. The lines of the Consolidated Company now extend into all parts of the state.

The Motor Transit Corporation, capitalized at $10,000,000, has been organized at Chicago to take over and operate bus lines in Minnesota, Michigan, Kentucky, Ohio, Illinois, Wisconsin and Texas. Edwin C. Ekstrom, president of the Greyhounds Lines, operating between Chicago and points in Michigan, is president of the new company.

The Baltimore & Ohio extended its trainside motor coach connection at New York on November 24, by starting a line of motor coaches from its new passenger station in the heart of Brooklyn, N. Y., to meet all trains at Jersey City Terminal. The new Brooklyn station is in the center of the business district and is the first trunk line station in Brooklyn.

The Shore Line Motor Coach Company, bus operating subsidiary of the Chicago, South Shore & South Bend Electric Railway, is issuing 10-ride bearer commutation tickets for transportation by motor bus from Gary and East Chicago to downtown Chicago at considerably reduced rates. This reduction in rates has been effected to encourage riding in the buses during the winter.

The Boston & Maine Transportation Company has applied to the Department of Public Utilities of Massachusetts for authority to operate motor bus service this winter over the Mohawk Trail between Gardner, Mass., and Greenfield, coordinating the highway service with the train service of the railway. At the outset one trip a day each way is planned but it is understood that the service will be increased as the demand warrants. At Greenfield the service on this line will connect with that on the route of the Boston & Maine Transportation Company between Greenfield and Northampton. Yellow coaches of the parlor car type will be operated on the Mohawk Trail route.

A new kind of competition, hitherto unknown in the bus field, is being met by the Boston & Maine Transportation Company on its line from Boston, Mass., to Manchester, N. H. On this route a number of buses, formerly used at Atlantic City, N. J., and carrying only New Jersey licenses, have been placed in operation by an independent company. The competition is made doubly severe by the fact that these buses are painted in colors almost exactly the same as those of the Boston & Maine buses. No legal steps to eliminate such competition have been taken but through advertisements the Boston & Maine is calling attention to the better service and greater responsibility of its company and urging patrons to make sure that the buses they ride are Boston & Maine buses.

The Northland Transportation Company has applied to the Railroad and Warehouse Commission of Minnesota for permission to operate buses from the Twin Cities to Duluth, Minn., via Mora and Mission Creek and also between the Twin Cities and Mora. Hearings on the application were held on November 17. The Northland has also asked for authority to reduce its intercity bus service between Minneapolis and St. Paul from 27 buses a day to 19. It was found that the extension of certain of its bus lines from outlying points through both Minneapolis and St. Paul instead of to only one of the Twin Cities, which was undertaken sometime ago, has resulted in a loss of approximately $1,500 per month. The Northland is now operating a daily average of 5,286 bus miles.

Motor Transport Meeting in Chicago, December 1 and 2

The Railroad Motor Transport Conference will hold its next meeting at the Hotel Congress, Chicago, on December 1 and 2. The session will open at 9:30 a. m. on the 1st, with registration of delegates and a preliminary business meeting. Then, from 10:30 to 1 there will be a discussion of passenger problems, divided between the rail-motor-car and the highway coach. N. D. Ballantine, assistant to the president of the Seaboard Air Line, will lead the discussion regarding the rail-motor-car, and R. A. C. Henry, director of the bureau of economics of the Canadian National, and E. Wanamaker, electrical engineer of the Rock Island, will speak. T. B. Wilson, supervisor of transportation of the Southern Pacific, will lead the discussion on the highway motor coach, and B. W. Arnold, of the Chicago, North Shore & Milwaukee, C. E. Wickman, president of the Northland Transportation Company, and X. H. Cornell, general manager of the Alton Transportation Company, will speak.

After lunch, at 2 p. m., a business meeting will be held at which the reports of the vice-chairmen dealing respectively with the rail-motor-car, the bus and the truck (N. D. Ballantine, T. B. Wilson and C. C. Woodruff) will be heard. Next the discussion of the proposed affiliation with the American Railway Association will be undertaken and a permanent organization set up for the ensuing year.

At a dinner scheduled for the evening of December 1, President T. C. Powell, of the Chicago & Eastern Illinois, and President Ralph Budd, of the Great Northern, have been invited to speak.

The entire second day of the meeting will be given over to a discussion of freight transportation by motor truck, under the leadership of G. C. Woodruff, assistant freight traffic manager of the New York Central. The morning session will be devoted to the truck in terminal service and the afternoon to line-haul. Speakers include B. W. Arnold of the Chicago, North Shore & Milwaukee, G. K. Blech, general freight agent of the Southern Pacific, E. F. Saur, terminal expert of the Pennsylvania, J. W. Roberts, general superintendent of transportation of the Pennsylvania, C. E. Taylor, terminal superintendent of the Atchison, Topeka & Santa Fe, and others.

Traction and Bus Company Complain of Railroad Competition

In a formal complaint filed with the Interstate Commerce Commission by the Schuylkill Railway and the Schuylkill Transportation Company the commission is asked to order the Reading Company either to increase the rates of fare on eighteen of its local trains or to abandon the trains and to refrain from operating motor buses in Schuylkill county, Pa., either directly or indirectly, in competition with the traction and bus lines of the complainants, unless on terms and conditions to be fixed in a certificate of public convenience and necessity.

The Schuylkill Railway operates an electric line and the Schuylkill Transportation Company a supplementary passenger motor-bus line paralleling the railroad of the Reading between Pottsville and Bear Junction, between Mahanoy City and Locust Dale, between Mahanoy City and Shenandoah and between Mahanoy City and Tamaqua. It takes no exception to the normal passenger fares of 3.6 cents a mile but says that the Reading company is operating at a net loss 19 local passenger trains in this territory because of the special "miner's tickets" sold at an average rate of approximately 1.3 cents a mile, and that admitting a loss on 14 local trains, proposes to abandon

them and to substitute motor-buses, to be operated by the Reading Transportation Company, for fares the same or lower than the train fares between the same points.

The complaint states that the competitive points in question are the chief centers of the anthracite mining industry and the population engaged therein and that the "abnormally low fares" originated at a time when the railroad and the mining interests were a unit and when it served their purposes to transport passengers over these lines regardless of cost. It is charged that these low fares are an unjust discrimination against interstate commerce and the Reading's freight and through passenger traffic and that the proposed motor-bus service "would be only a continuation of the said unlawful practice in another form."

No passenger service is supplied by the railroad between the points in question, the complaint says, which is not or could not be also supplied contemporaneously by the electric railway or bus lines, and it is contended that the entire passenger traffic of the trains proposed to be abandoned would not sustain the admitted expense of the proposed bus operation, $83,285 for an annual bus mileage of 277,619 miles, while there is no substantial amount of additional passenger traffic to be gained for the railroad buses "except by diverting traffic from the competing lines of the complainants and other electric railway and motor bus companies now long and well established in the field."

"Instead of the advantage now offered to the public by train service the defendant will by the proposed motor bus operation offer the public no transportation which is not already offered by the complainants and other electric-railway and motor-bus companies," the complaint says: "The complainants believe and therefore aver that the proposed motor-bus investment and operation of the defendant can only result in even greater losses than the defendant now admits that it suffers in train operation and will suffer in motor-bus operation."

The "admissions" of the Reading referred to are said to have been made in connection with its application to the Pennsylvania public service commission.

Orders for Equipment

THE CHATTAHOOCHEE VALLEY has purchased a six-cylinder bus, equipped with a sedan type body with seats for 21 passengers, from the Studebaker Corporation, South Bend, Ind.

Motor Transport Officers

Reagh C. Boyden has been appointed mechanical superintendent of the Boston & Maine Transportation Company, with headquarters at Lechemere square, East Cambridge, Mass., succeeding C. C. King, resigned. This change was effective on October 28. Mr. Boyden was born in Boston on February 13, 1896, and was graduated from the Mechanic Arts High School, Boston, in 1914. He studied mechanical engineering at Wentworth Institute, from which institution he was graduated in 1916. Thereupon he entered the service of the Norton Company, Worcester, Mass., in the office of the master mechanic. This position he left in 1917 to go with the United States Shipping Board, in the service of which he remained until 1922, serving in various capacities from oiler to chief marine engineer. He then went with the Shawmut Automobile Service, Boston, where he remained until the following year, when he resigned to enter the motor equipment department of the Eastern Massachusetts Street Railway, in the employ of which he remained until the time of his entering the service of the Boston & Maine.

R. C. Boyden

Among the Manufacturers

The Hall-Scott motor, made by the **Hall Scott Motor Company,** Berkeley, Cal., a subsidiary of the **American Car & Foundry Company,** will in future be used by the **International Harvester Company** in all the buses and trucks manufactured by the latter company.

Joseph M. Brown, formerly general agent in the central western territory for the Elwell-Parker Electric Company, has been appointed assistant to the vice-president of the **White Company,** Cleveland, Ohio, with headquarters at 360 No. Michigan avenue, Chicago. Mr. Brown will have charge of contact in connection with the sale of motor buses and trucks to the railways and industrial companies in the lake region. Mr. Brown has been identified with the railway supply business in Chicago and the central west during the past 25 years. He established a branch office in Chicago for the F. H. Lovell Company, manufacturers of train lighting materials in 1901, and seven years later entered the sales department of the Dressel Railway Lamp Works at Chicago. Mr. Brown was appointed general agent in charge of the central western territory for the Elwell-Parker Electric Company in 1910. Later he entered the sales organization of the Chicago Malleable Castings Company, in charge of the promotion of general sales, with headquarters at Chicago.

J. M. Brown

Al W. Scarratt has been appointed assistant chief engineer of the **Hyatt Roller Bearing Company,** Newark, N. J. Prior to joining the Hyatt organization, Mr. Scarratt spent 13½ years with the Minneapolis Steel & Machinery Company, Minneapolis, Minn. Besides his work on tractors, engines, and other farm equipment, he developed the Twin City line of motor trucks, the Twin City Bus, and a new type of mechanical drive gas rail car having four live axles and eight driving wheels. He was one of the organizers of the Society of Tractor Engineers in Minneapolis, and a prime mover in merging that organization with the Society of Automotive Engineers. He has served as councilor, vice-president of Tractor Engineering, and is now secretary of the Minneapolis section of the S. A. E. He has also served on various standards committees of the society. For eight years previous to his association with the Steel company, Mr. Scarratt served the Twin City Rapid Transit Company, five years in the mechanical department and three in power house and electrical development work.

A. W. Scarratt